

# Scale, Space and Canon in Ancient Literary Culture

REVIEL NETZ





## SCALE, SPACE AND CANON IN ANCIENT LITERARY CULTURE

Greek culture matters because its unique pluralistic debate shaped modern discourses. This groundbreaking book explains this feature by retelling the history of ancient literary culture through the lenses of canon, space and scale. It proceeds from the invention of the performative “author” in the archaic symposium through the “polis of letters” enabled by Athenian democracy and into the Hellenistic era, in which one’s space mattered and culture became bifurcated between Athens and Alexandria. This duality was reconfigured into an eclectic variety consumed by Roman patrons and predicated on scale, with about a thousand authors active at any given moment. As patronage dried up in the third century CE, scale collapsed and literary culture was reduced to the teaching of a narrower field of authors, paving the way for the Middle Ages. The result is a new history of ancient culture which is sociological, quantitative and all-encompassing, cutting through eras and genres.

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*Stanford University, California*



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*To Maya, Darya and Tamara*





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## *Abbreviations*

BNP	<i>Brill's New Pauly: Encyclopaedia of the Ancient World</i> , 22 vols., eds. H. Cancik, H. Schneider and M. Landfester. 2002–10. Leiden.
CEDOPAL	Centre du documentation de papyrology littéraire. University of Liège.
CLA	<i>Codices Latini Antiquiores: A Palaeographical Guide to Latin Manuscripts Prior to the Ninth Century</i> , 12 vols., ed. E. A. Lowe. 1934–71. Oxford.
DPA	<i>Dictionnaire des philosophes antiques</i> , 7 vols., ed. R. Goulet. 1989–2018. Paris.
EANS	<i>Encyclopedia of Ancient Natural Scientists: The Greek Tradition and Its Many Heirs</i> , eds. P. T. Keyser and G. L. Irby-Massie. 2008. London.
LDAB	Leuven Database of Ancient Books. Catholic University of Leuven.
PGRSRE	<i>Prosopography of Greek Rhetors and Sophists of the Roman Empire</i> , P. Janiszewski, K. Stebnicka and E. Szabat. 2014. Oxford.
RE	<i>Realencyclopädie der classischen Altertumswissenschaft</i> , 84 vols., eds. A. Pauly, G. Wissowa and W. Kroll. 1893–1980. Stuttgart.
TLG	<i>Thesaurus Linguae Graecae</i> .

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In the next pages, as the book proper unfolds with the Preface, I begin with a note of gratitude to my teacher, Geoffrey Lloyd. Gratitude and reverence to my teachers are my starting point.

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Center, where I completed the draft of the manuscript in the academic year 2015/2016, and at Stanford's Center for Advanced Studies in Behavioral Sciences, where I am now putting the finishing touches to it, in the academic year 2018/2019. I have been very lucky in the generosity of my department and my deans.

Many of the students who studied with me at the Department of Classics at Stanford have become, effectively, my student-teachers. Many have read portions or all of my manuscript (a few, indeed, have been kind enough to check my English tenses). With all of them I experienced the magic of graduate teaching: how an argument – theirs, and mine, together – is built up by being questioned. And also that other miracle, inherent to classical studies: how the distinct branches of the classical world come together, as if all those rivers were connected, mysteriously, by subterranean canals. Among those teacher-students I can mention: Scott Arcenas, Melissa Bailey, Nicholas Boterf, Amy Carlow, Leonardo Cazzadori, David Driscoll, Simeon Ehrlich, Nicholas Gardner, Jacqueline Montagne, Jack Mitchell, Mark Pyzyk, Courtney Roby, Veronica Shi, Verity Walsh and Johannes Wietzke.

I wrote this book as a labor of love, without contract at hand, and it was with some dread that I sent it to Cambridge. Michael Sharp, editor of classics at Cambridge University Press, was, as always, the perfect editor. Emma Collison led the project of the making of this book with rigor and kindness; Mike Richardson was a precise and tactful copy-editor. I am especially grateful to two outside readers, who made many, many comments that have greatly improved this book.

I remain responsible for all errors and mistakes. Indeed, even with all the many friends along the way, the writing of this book, as of any other, remained, at its core, a lonely enterprise. Yet I did not feel lonely, writing this book. Instead – as will be apparent to my readers – this book was written with great excitement and joy. I owe this joy to the people to whom this book is dedicated: my wife, Maya Arad, and our two daughters, Darya and Tamara. Thank you, all.



## *General Introduction*

An introduction is a good moment in which to express gratitude. It was a little more than 20 years ago that I submitted the last file of my dissertation to my supervisor, Geoffrey Lloyd. At this stage of the dissertation work, I already knew what to expect. A couple of days later the manuscript chapter, littered with Geoffrey's scrawls, was in my mailbox, and I settled down to decipher that handwriting.

This [last chapter](#) concerned the historical context of the Greek mathematical genre. Why did Greek mathematicians write the way they did? I explained this in terms of the historical context in which the genre was formed, which I identified as the early fourth century BCE. So: a product, like so many other facets of Greek culture, of the polis and of Athenian democracy. I then went on to note, almost in passing, that the form then survived "because some aspects of the relevant background remained in force throughout antiquity", by which I meant to say that, in many ways, the culture of the democratic polis remained dominant throughout antiquity. Next to those words I found scribbled "I am not so sure" – in which, of course, Geoffrey Lloyd was right. I knew that I needed to find another account. More than 20 years late, I offer this book: my second try.

For, you see, Lloyd's question really puts in doubt much of the scholarship concerning the rise of Greek civilization – including that of Geoffrey Lloyd himself! Let me explain. Perhaps the central insight of twentieth-century scholarship on Greek culture was the emphasis on the role of public, face-to-face debate, in turn related to the culture of the classical polis and, in particular, its democratic experiment. This cultural feature was taken to explain most aspects of Greek culture: agonistic, performative, radically innovative. Lloyd himself, especially in his [1979](#) and [1990](#) books (following upon earlier suggestions, in particular Vernant, [1962](#)), has argued for a thesis that traces the rise of Greek science to the culture of the democratic experiment. Such a thesis serves to historicize the rise of

science and to make “rationality” a feature not of some nebulous “mentality” but, rather, of a concrete historical practice.

Contemporary scholarship into ancient culture often follows this template: (1) explain a Greek cultural form through a moment of origin in the classical era – and then (2) ignore the question of the long-term survival of that moment.

But this is clearly in some sense wrong. The democratic experiment was the affair of a subset of the classical poleis: no more. It was to a large extent over already by the end of the fourth century.<sup>1</sup> Now, of the roughly 49 million words of Greek currently on the Thesaurus Linguae Graecae (TLG), dated to not later than the end of the fifth century CE, just a little more than 5 million are dated to not later than the end of the fourth century BCE. The legacy of Greece, in such crude terms, is about 90 percent post-classical and only 10 percent (archaic and) classical. But there is in fact a much stronger argument to be made: the 10 percent “classical” segment of the Greek legacy no doubt had a major influence on later civilizations. But it did so only through the efforts of post-classical Greek civilization to keep this segment alive, not only to preserve a group of texts but also to maintain a body of knowledge surrounding them that infused such texts with meaning.

As Ian Morris puts it (2010: 260), “Democracy disappeared from the West almost completely in the two thousand years separating classical Greece from the American and French revolutions.” And so, Morris argues, it is absurd to find the explanation for the special achievement of the West in the Greek democratic experiment. But should we therefore throw out our accounts of the specific achievements of Greek culture, anchored in the classical polis? We need a different kind of account: one that explains Greek civilization as a phenomenon larger than the democratic polis – and yet accounts for the centrality of the Athenian experiment within this civilization. We need to understand how the Athenian experiment was canonized – and the kind of influence this canonicity had.

This book, then, is an attempt to answer Lloyd’s question, and along the way to explain the shape of the Greek legacy, and its significance for

<sup>1</sup> This has to be qualified: the end of Athens as a major political agent (which can be precisely dated to 338 BCE, or to 322 BCE at the latest) did not translate into a total collapse of democratic practices around the Greek world. There has recently been more interest in the extent to which democracy survived into the Hellenistic era (for which a good starting point is Mann and Scholz, 2012), a point to which we shall return in Part III. Even so, there is no doubt that, after the fourth century, democracy gradually became less central – and that most cultural activity was around the major cities governed by, or subservient to, monarchic courts.

the West. Ultimately, I argue that the survival of a classical canon was important in two ways: (1) in that it left behind a tradition that, in literary form, preserved the ideals of the face-to-face city (what I refer to as “the polis of letters”); and (2) in that it created a gap between culture and state: what was canonized was not a state ideology but in some sense defined a social space away from the state – providing, as it were, the conditions for the emergence of civic society. These are the two main upshots of the book, providing together an outline of how a modestly scaled event in the classical Greek-speaking world carved out a unique historical path for the Mediterranean. All civilizations were mostly monarchical but those of the West ended up being committed to those two ideals: public debate, and a culture distinct from that of the state. Another claim I develop is that, thanks to the failure of Greek civilization to develop a monolithic state ideology, a space was opened for more or less autonomous cultural practices, of which the most significant, in the long term, was the rise of a distinctive scientific practice in the Hellenistic era. This combination – public debate, civic society and scientific practice – arguably accounts for the distinctive achievements of western Europe in the early modern era.

Strong claims, and I am required to produce a detailed historical account: how the classical canon was formed, and why it was never replaced. Which means that this is mostly an account not of the classical canon itself but of post-classical reception: a history of literary practices in Hellenistic, Imperial and late ancient times.

The duration is long, and the scale is big. The relevant level of analysis is that of culture as a whole: technical as well as strictly literary. Part of the difficulty I had in constructing the argument towards the end of my dissertation was that I was trying to determine the causes for the stability of a particular cultural form – mathematics – in isolation from its larger cultural setting. But culture is a system. This is not merely a structuralist declaration of faith but, rather, a straightforward point about how one may study a canon. The very meaning of such terms as “canon” and “genre” is positional: they entail a certain relation to the literary field taken as a whole. And so one has to reach beyond one’s training and address something such as “Greek civilization as a whole”: the many genres, the many places, the many periods.

I come to this book, as it were, as a historian of mathematics, but – in a process familiar to mathematicians – the problem has meanwhile been *generalized* and need no longer refer to its original terms. This is a book not about Greek mathematics but about Greek literary culture as a whole.

The key methodological commitment of this book, then, is to the study of literary culture as a whole. From this follow certain other methodological consequences. Studying literary culture as a whole implies an attention to overall patterns more than to individual details. I thus regularly offer statistics and maps. While I do make many qualitative pronouncements, these are, with a few exceptions, generalizing and impressionistic, and not based on close readings. Studying the regularities of literary culture as a whole also implies adopting a perspective which need not have been available to the ancient actors themselves (they had pursued their own practices, without necessarily pausing to consider their literary culture as a whole). For this reason, I make no effort to identify the authors' concepts and am content to deploy my own observer's concepts throughout. The result is a book very different from traditional classical philology. The complex footnote with its plethora of primary and secondary sources is almost entirely avoided (my footnotes, instead, merely point to the key, recent studies with which the reader, wishing to pursue a point of detail, may begin her research).<sup>2</sup> Only rarely do I offer close readings of individual passages or reconstructions of the meanings of original terms. Fortunately for me, traditional philology now has few champions, and I will not spend time arguing against the straw man of the philological critic. Instead, I will apologize to him.<sup>3</sup> I have no interest, as such, in debunking close reading or in debunking the recovery of actors' concepts: I find such research exciting and rewarding (as well I should, spending most of my working life as Archimedes' philologist). I am not even interested in promoting in general this or that methodology: one should simply use the tools that are useful for a task. I write a book on a broad-brush question and so I use a broad brush; for other projects, other, finer brushes are more appropriate.

The Greek classical legacy is the subject of the first part: "Canon". In this first part I offer an account of the position of the Athenian democratic experiment for ancient culture as a whole. The second part, "Space", concentrates on the Hellenistic era: how the system of oppositions between

<sup>2</sup> One reason we, classical scholars, often write very long footnotes is to display our mastery of a field: about the topic of the footnote, we know less, perhaps, than von Wilamowitz-Moellendorf, but, anyway, more than practically anyone alive. Not me, not here. This book ranges widely – you will see – and, on most pages, I write on topics on which there are at least a hundred classicists better informed than myself. (This book aims to be, simultaneously, a work of scholarship *and* a work of synthesis: is this combination at all possible? I am not sure, but, at any rate, this is the gamble underlying this work.)

<sup>3</sup> I was about to write "to her" and then realized that straw men are male by definition – as were the great bulk of ancient authors and readers. In this book, the generic lyrical poet will be "he or she"; otherwise, generic ancient authors and readers will be referred to as "he".

Athens and Alexandria was constructed, and how it gave way to another system dominated by Roman networks. In particular, in the third century BCE the opposition between Athens and Alexandria made possible a nearly autonomous practice of science. In general, my emphasis would be on a Hellenistic duality, on a Roman plurality. The crucial point is that somehow, in the post-classical era, the Mediterranean became monarchical – and yet failed to develop a unifying ideology. Ultimately, I would argue, this was because of the specific ways in which space and canon interacted to prevent the rise of a replacement to the Athenian canon. The third part, “Scale”, attempts a reconstruction of the absolute numbers of authors, books and their audiences in antiquity. This is found to be especially important for the account of culture through the Imperial era and into late antiquity. I follow the contexts and consequences of a rise in scale, through the Imperial era, followed by a major decline through the third century CE. This final transition into late antiquity achieved, finally, something of a stable, revered corpus of writing, across all fields: the pluralism of the democratic experiment, finally curtailed. It was shot through with the contradictions and legacies of more than seven centuries of debate, however: a treasure house of heterogeneity that will shape future Mediterranean civilizations.

In the first part I show the homogeneity of the central canon. In the second part I show how this homogeneity of the canon led, paradoxically, to the heterogeneity of the specialized genres. In the third part I show how the specialized genres, finally, became homogeneous – only in late antiquity.

I draw maps, make counts. The key technique is statistical. Would that I could say that this book thus shows, in such a way, my background in mathematics! But in fact I am no mathematician, still less a statistician. I am better prepared to offer close readings of Greek lyric poetry than I am to measure statistical significance. This book displays no statistical sophistication; it offers no more than simple tables and a few correlations. I could have hired a statistician and deployed t-values and chi-squares; I chose not to, for a reason. With the kind of evidence available to the ancient historian, the potential biases in our evidence are so huge so as to swamp any statistical artifacts of randomness. We need to look not for mathematical but “archaeological” significance: a sense of how the evidence was formed and what its biases of selection were. This qualitative grasp of the evidence is, in general, the one most important in the application of statistics to historical questions. And so the appropriate response is to consider bias explicitly – and to concentrate on clear, qualitatively meaningful results. Percentages are always discussed in rough approximations: where I find 17 percent, I discuss them as “roughly 20 percent”. And, while

raw figures are provided precisely, I expect such numbers to be wrong in detail and am not concerned about this. Even if I count 29 philosophers at a given place, and a better scholar will count 33, the types of conclusions I draw will never depend on such detail: I leave room for error, for error there will be.

I rely throughout on simple tools: mostly, counts of citations, papyrus fragments and authors based on reference works and indices. The tools are simple but they are solid, for the study of the ancient world is now based on remarkable databases and reference works, in turn based on the collection, edition and preservation of an enormous corpus. So it is for a reason that I feel gratitude to traditional philological scholarship. But the point is deeper than just my gratitude to past scholars, who created information and then aggregated it in ways that make possible an impressionistic synthesis such as the one offered here.

Rather, the truly remarkable thing is the presence of a tradition that preserves a robust image of a civilization as a whole. The statistical approach is not favored by classical scholars, I suspect, because of a widely shared assumption that our knowledge of antiquity is too fragmentary. Part of the argument of this book will be that this is not true. The ancient literary practice is very well attested, *for a reason*. It was a self-aware, widely dispersed activity which kept recording itself in rich, pluralistic detail – and which continued to be treasured by a chain of civilizations that defined, through the centuries, an ever-expanding Mediterranean. Let us begin to explore this, starting right at the top of the chain: the Greek canon.

## PART I

### *Canon*

The response to Lloyd's note is, I think, rather simple. Appropriately – for a question raised by Geoffrey Lloyd – I begin with a comparison with China.

Mark Lewis' book *Writing and Authority in Early China* (1999) studies the formation of the Chinese canon during the Han period. This canon was a particular Confucian interpretation as well as a reconstruction of the "classics". A single group of texts triumphed, arranged hierarchically according to degrees of authorial remove: anonymous classics at the top, a constructed author "Confucius" (quoted but not authoring himself) interpreting them, trailed by the various authored texts that interpret Confucius. And that was indeed a single group of texts, promoting the ideals of a single group, the servants of the state: ritual-literate masters (*ru*). Thus, this group of texts both represented an ideal polity (*Zhou Li*: this polity was imagined to exist in mythical, early dynasties) as well as *constituting*, in itself (Lewis' key observation), such a polity. Lewis insists throughout on this duality: hierarchy and unity were ideals promoted by the texts – as well as a material/textual reality, embedded in the works themselves. Here is Lewis' summary of the significance of this canon formation (1999: 362):

The imaginary state of *Zhou Li* came to define the imperial order, and the textual realm fashioned in the coded judgements of the [texts of the canon] endured, while the substantial realities of actual administration all turned to dust. In this way the Chinese empire became a realm built of texts.

My point will be obvious. The Greek case was exactly complementary: the political conditions of the democratic experiment in Athens became established not so much in the political realm but, rather, as the Greek literary canon – forming an alternative, *cultural* realm. It represented a realm of face-to-face agonistic encounters between free individuals anchored in the polis. It also constituted, in its very formation as a group of texts,

a principle of multiplicity (many genres, many authors and many works), tied to clearly defined locations in city states, commemorating a Greek world of multiple city states, above all commemorating Athens; the multiple authors being fundamentally on an equal footing as far as their authorial status is concerned; and the system as a whole based on the tension of synchronic individuals. The canon spoke of the realities of the early polis and constituted, in itself, a kind of textual polis: what I would call the “polis of letters”.

The Mediterranean saw little democracy in the actual political sphere. It saw Hellenistic kingdoms, a Roman empire and its Christian and Muslim heirs (in those later civilizations, an ideal of political unity sat side by side with an ideal of religious orthodoxy). Through all that, though, the canon survived as an alternative frame of reference, sometimes more active, sometimes less, but always a guide for a cultural conduct at variance with the realities of monarchy; it also served to qualify and even obstruct the formation of a more direct, “Confucian” state ideology. The individual in face-to-face debate always remained as a central model of intellectual and literary practice. In particular, through many centuries, the specialized genres could be inspired by a canon enshrining the democratic polis, without being canonized themselves. Within the specialized genres, one continued to struggle for a leading position, creating a varying range of intellectual alliances throughout a shifting Mediterranean.

My argument is in a sense simpler than Lewis'. I do not need to argue that the cultural canon was a historical force that shaped later politics; rather, I just need to argue that the cultural canon was a historical force that shaped later culture. This should hardly be controversial. The key observation is simply that the cultural canon was a more significant force than the contemporary political culture. What mattered most for cultural practice was not the presiding role of a Ptolemy or an Augustus but that of Euripides, Plato and Demosthenes. Culture was shaped not by its contemporary politics but by its foundations on a canon.

Throughout much of antiquity, the spirit of debate in the canon was enacted in the specialized genres, against the background of spaces in contest: Athens against Alexandria, and then a Roman synthesis that was deliberately distinct from either preceding model. It was also enacted within a cultural space that was big enough to contain debate: a large audience, many cultural contestants and many books. Late antiquity saw a collapse in scale. Under the pressure of this collapse, the specialized genres changed their character, and they assimilated to the structure of canonicity of the literary field. Canon, at this point, became all-pervasive, and this pervasive



canon of Greek antiquity was bequeathed to the Middle Ages. But, at this point, it was shot through and through with a variety and tensions, marked by a bizarre cultural hybrid of the pagan and the Christian. At some point the conditions would be finally ripe for the polis of letters to reassert itself. This would happen, most significantly, in early modern Europe and would define, finally, the place of the Greek legacy in world history.

Such is the outline of my claim. The roles of space and scale in the growth of the specialized genres of antiquity are discussed in [Parts II and III](#) of this book. For this part, my task is to discuss in detail the structure of the ancient canon and to offer a historical account for its stability.

[Chapter 1](#), “Canon: The Evidence”, discusses the sources of evidence for the canon – above all, the papyri – and along the way maps the canon itself. Its main claim is simply that the canon was real: the same authors were both more prestigious as well as more popular, and this seems to be true, equally, across times and places: from as soon as our evidence for the canon emerges, and everywhere across the Mediterranean. [Chapter 2](#), “Canon in Practice”, has two distinct tasks. It first describes the canon structurally, arguing in detail for the validity of my central metaphor, the canon as a “polis” of letters: this is crucial for the argument of the lasting impact of the canon. It then accounts for the canon historically, arguing for its early formation and providing a part of the account of its stability (an account picked up by later parts of the book) – the stability which ultimately, I argue, answers Lloyd’s query.

This part of the book, in short, argues that the Greek canon was real. A brief caveat, then. Whether or not the canon is “real” is often taken, in contemporary discourse, as a question of value: do certain works of art (and perhaps also the ideology they convey) stand for timeless realities? It should be obvious that I have no interest in this question. When I claim that the Greek canon was real, I make a purely sociological observation: certain Greek authors were more frequently read, and more widely valued, and that, throughout all antiquity, the overall ranking of such authors remaining nearly unchanged. Even this purely sociological claim is controversial, and so I shall need to bring in the evidence.



*Canon: The Evidence*

Near the beginning of his commentary to Plato's *Parmenides*, Proclus tries to account for the very purpose of the dialogue.<sup>1</sup> He mentions that some consider it to be primarily an agonistic response to Zeno of Elea, and he notes the variety of ways in which Plato engages in such agonistic responses. Sometimes, Plato simply tries – so Proclus – to outdo his opponent, for instance in the way in which, in the *Menexenus*, he tries to write a funeral oration even better than that of Thucydides.<sup>2</sup> There are many ways in which this is a suggestive passage: to begin with, it reminds us that authors of Proclus' time found it natural to write commentaries on works roughly 800 years old; that, even while engaged in an emulation and almost a religious celebration of that distant past,<sup>3</sup> they understood the past authors themselves to have been engaged in an agonistic practice (the authors they emulate, Proclus understood, did not emulate each other); and, finally, that Proclus and his audience had a very clear idea of some of the figures they referred to. The name “Thucydides” occurs twice – no more – in all of Proclus' extant, prodigious output, and, on both occasions, it is brought in with no explanation: the audience would know perfectly well who Thucydides was, and also, indeed, how the *Menexenus* could be seen as being in implicit competition with it.

<sup>1</sup> Proclus, a fifth-century CE author, had a huge output: more than 50 works may be ascribed to him with confidence, of which the bulk take the form of philosophical commentary (SEP, s.v. Proclus, *Supplement*: 52, non-dubiously attested works, of which 27 are explicitly commentary; but many of the non-commentary works are in fact introductory to the reading of Plato, while the explicit commentaries tend to be more bulky than the more systematic works). This is in line with the overall project of commentary in late antiquity: a teacher, brokering a text to his audience; such brokerage requires, perhaps primarily, an account of the purpose of writing (Mansfeld, 1994: 10). See pp. 775–7 in Part III.

<sup>2</sup> Proclus, in *Parm.* 631.27–8.

<sup>3</sup> A two-day festival of celebration of the birthdays of Socrates and Plato is attested in Marinus, *Life of Proclus* 23 (Penella, 1984).

Most remarkably, Proclus was quite likely right.<sup>4</sup> In other words, the historical writings of Thucydides were so clearly present to a late ancient philosopher such as Proclus that he not only took them for granted but also could have interpreted correctly their meaning for an early reader such as Plato. Proclus was at home in the literary practice of fourth-century BCE Athens.

At this point it is customary to cite Borges. I will use him to bring out a contrast. In “Averroes’ Search” (“La Busca de Averroes”),<sup>5</sup> Borges imagines how – in the Andalus of the twelfth century – Ibn Rushd (or Averroes, in Borges’ Eurocentric spelling) sets himself the task of writing a commentary on Aristotle’s *Poetics*, and how Ibn Rushd concludes that “[Aristotle] gives the name ‘tragedy’ to panegyrics and the name ‘comedy’ to satires and anathemas”.<sup>6</sup> Ibn Rushd gets it wrong, you see, because *he has no idea what Greek theater was like*. How could he have one?

Borges’ story is a wonderful literary evocation and a rendering of a Corduba which is as distant from Borges as Plato was from Proclus. Borges’ point was how difficult it was, in general, to evoke a different culture (and so the story ends on a self-reflective, ironic note, undermining Borges’ own effort). And indeed, while Borges is a bit unfair to Ibn Rushd (who did get it half right, and whose original purpose was explicitly to map Aristotle’s terms onto Arabic literary forms),<sup>7</sup> he does get something essential right. Not perhaps a universal point, but a particular historical one: Borges accurately reveals the contrast between the reception of the Greek canon within the continuous transmission of the Greek tradition itself, and outside that transmission. The Greeks have always transmitted simultaneously Plato – and Thucydides; Aristotle – as well as tragedy and comedy. It was a canon that traveled together, its parts in mutual support. This is distinctive, and non-obvious: other cultures did not take on board, similarly, the entire system; hence Proclus’ success, and Ibn Rushd’s failure.

This was a self-evident system of genres, visible from any vantage point offered by the many forms of cultural life. Galen, an Imperial-era medical author, famously thought that the best doctor should know how to reason properly, hence should know philosophy; he also thought that he should know the meaning of words. And so Galen also wrote 12 books with

<sup>4</sup> At least as early as Berndt (1881) modern scholars have pointed out the allusions Plato seems to direct at Thucydides; see Coventry (1989: 3 n.8).

<sup>5</sup> Borges (1962 [1947]: 148).

<sup>6</sup> The quotation is from Borges, not Ibn Rushd; I understand that Borges relies on reliable translations.

<sup>7</sup> Mallette (2009).

commentary on fifth-century BCE Athenian comedies.<sup>8</sup> This is Galen: frantically piling up his cultural capital (on this tendency in the Roman era, see in [Chapter 6](#), section 6.3). Archimedes, the Hellenistic mathematician – a much more subtle author – wrote *The Sand-Reckoner*, a treatise setting out to show that the number of the grains of sand can be expressed. Among other things, this surely is a subtle allusion to Pindar: a scientific-literary move typical of Hellenistic Alexandrian culture (more on this in [Chapter 4](#), pages 670–7).<sup>9</sup> Proclus on Thucydides, Galen on Aristophanes, Archimedes on Pindar. We have covered the three post-classical eras (Hellenistic, Imperial and late), the three main branches of non-belletteristic writing (philosophy, medicine and the exact sciences) – and we find an important continuity. In all cases we see a non-literary author referring to a literary author, and *nothing in this appears to be remarkable*. That the authors and their audience share the knowledge of the literary authors is taken for granted. Ibn Rushd’s difficulty was, after all, that Aristotle took for granted his audience’s familiarity with a particular canon of fifth-century plays, and so he did not even bother to explain what they were. The same familiarity could still be taken for granted nearly a millennium later.

This continuity was maintained, materially speaking, in the form of books. And so we should look for the ancient book. Concentrating just on the Nile Valley (that is, excluding the spectacular find of the library at Herculaneum), even considering only “pagan” works, we now have at least a rough description of some 7,000 literary papyri (the terms “literary” and “papyri” both being understood in an expansive sense: more on this below). Those are 7,000 *fragments*, containing on average less than 4 per cent of their original text.<sup>10</sup> Let’s start from there.

## 1.1 Data from the Papyri

Our notion of “canon” has two distinct components: first, what we may refer to as *prestige* – the familiarity and positive attitudes regarding (for instance) given authors; second, *popularity*, for instance as measured in the circulation of books. In the modern context – under the pressure of mass

<sup>8</sup> Nutton (2009: 30).

<sup>9</sup> *Ol.* 2.98: “Since sand escapes number. . .” While the use by Pindar may well be the most canonical (and is Sicilian in theme, suitably for Archimedes’ purpose), this is in fact a widespread trope (Nisbet and Hubbard, 1970: 321).

<sup>10</sup> As I note below, I calculate an average 4 percent fragment size from the data of Johnson (2004, tab. 3.7). Johnson selects for study *identified* texts, however, which creates a bias for larger fragments. Note also that there are many papyri fragments as yet unpublished even in rudimentary form, most of them being on the small side.

literacy – a (qualified) divide has formed between the two, in a process classically described by Bourdieu 1993 [1983]. In some cases, authors directly base their cultural capital – that is, their prestige – on their low circulation. This has got to the point that “non-canonical literature” is understood to refer primarily to such genres in which high circulation coincides with low brand reputations for the genre as a whole (such as the detective novel). All this is a modern phenomenon, and, to the (restricted) extent that this now holds, the modern canon is, historically speaking, an anomaly. In the case studied here, the two – prestige and popularity – coincide (with qualifications that will be discussed below), and I will use the term “canonical” to mean both. But I start with the evidence regarding circulation.

The following table lists, in descending order, all the Greek authors for whom two or more papyri fragments (found other than in Herculaneum) are identified.<sup>11</sup> The author name is followed by the number of fragments. I divide the list into sub-tables according to tiers (which are of course my own construction). For each author, I note genre and date.<sup>12</sup> I note immediately the most obvious shortcoming of this table: it does not include the currently unidentified papyri. Their potential impact (which I argue to be minor) is discussed in [section 1.4.1](#).

<sup>11</sup> This does not mean “all authors for whom two or more fragments were found”: about a third of the fragments of literary papyri are *adespota* and could hide a few more authors frequently surviving (as well, of course, as changing the numbers for the identified frequently surviving authors; I return to discuss this on pp. 79–88 below). It is obvious that Herculaneum would badly corrupt the sample; I return to this point below. The source is CEDOPAL, an online database that represents the current state of Mertens–Pack, originally a database tracking all non-Herculaneum, “pagan” papyri (with a few exceptions). I will have a few more notes to add below concerning Christian papyri, as well as returning to the overall nature of the databases. It should be said immediately that CEDOPAL allows a minor amount of overcount, in that deleted or dubious entries are still counted. For most purposes I ignore this, though in a few cases I will note that an individual author is especially inflated. I use CEDOPAL and not LDAB (a more comprehensive, and better-thought-out system) because CEDOPAL is good enough for the purpose of gaining general statistics, and had a much easier interface when the data were compiled. Put simply, I would never have been able to compile all the statistics of papyrus count generated in this book from the LDAB database. I avoid in this book the convention of providing the date in which an internet resource has been accessed, as I have accessed the sites multiple times. In general, the data on papyri used in this book were compiled in 2011, but, prompted by readers for the press, I then went and recounted this first table, in the first week of July 2018, so as to ensure that no significant changes had occurred (only one interesting development was noted: a significant rise in the number of papyri by Plutarch; see p. 93 below). As a consequence, I allowed myself in most cases, in the following tables in this book, to reuse the data from 2011 without recalculating them.

<sup>12</sup> My genres are constructed here in a coarse-grained sense. Dates are given for the multiple of 50 which occupies the largest segment of the author’s productive life (a date such as –400 means that most of the author’s work was produced during the period –425 to –375). Even when in doubt, I give a speculative precise date; specific numbers, with recognition of error, are better than fuzzy numbers.

**Tier 1: The central canon (over 30 fragments) – 17 authors<sup>13</sup>**

Homer	1,680	Poetry: ep.	Archaic
Demosthenes	204	Prose: rhet.	–350
Euripides	169	Poetry: trag.	–400
Hesiodus	137	Poetry: ep.	Archaic
Isocrates	132	Prose: rhet.	–350
Menander	105	Poetry: com.	–300
Plato	103	Prose: phil.	–350
Thucydides	98	Prose: hist.	–400
Callimachus	77	Poetry: ep. <sup>14</sup>	–250
Aristophanes	59	Poetry: com.	–400
Apollonius	55	Poetry: ep.	–250
Pindar	55	Poetry: lyr.	–450
Aeschines	50	Prose: rhet.	–350
Xenophon	50	Prose: hist.	–350
Herodotus	48	Prose: hist.	–450
Sophocles	37	Poetry: trag.	–450
Aeschylus	33	Poetry: trag.	–450

**Tier 2: Less dominant canonical authors (9–29 fragments)<sup>15</sup> – 17 authors**

Hippocrates	29	Prose: med.	–400
Alcaeus	28	Poetry: lyr.	–600
Theocritus	28	Poetry: ep.	–250
Sappho	25	Poetry: lyr.	–600
Archilochus	19	Poetry: lyr.	–650
Plutarch	16	Prose: phil.	+100 <sup>16</sup>

<sup>13</sup> The cutoff point is in a sense arbitrary. The bottom of the list has very significant non-papyrological support, however: it is historically plausible that Xenophon, Sophocles and Aeschylus should be considered as forming part of the central canon. I shall return to discuss below the relationship between papyrus frequency and other sources of evidence for ancient reputation.

<sup>14</sup> The coarse-grained division into genres is problematic here, for the first time in this table. I return to the example of Callimachus and his genres, and the general question of pigeonholing ancient authors, on pp. 127–35 below.

<sup>15</sup> The bottom cutoff point is in this case truly arbitrary, but I believe it is better to make some distinction than none; it comes in handy that there happened to be, in both 2011 and 2018, no eight-papyrus authors.

<sup>16</sup> Plutarch is the first author in this list whose numbers should be adjusted for date. Since he wrote in the first century CE (and, as we shall see below, wide circulation usually took some time to achieve in antiquity), he had a smaller chronological range in which to circulate, and so the 16 fragments are the equivalent of, say, 20 to 25 fragments from a classical author (the adjustment is not much greater than that, since most of our literary papyri are from the Imperial era, indeed beginning with the second century). This type of adjustment is especially important for the genre of the novel as a whole. Note finally that Plutarch is the author whose fortunes improved the most from 2011 to 2018 (from nine to 16 – almost doubling his count). It now becomes clear that Plutarch was a massively successful author *already in antiquity*. His

*(cont.)*

Aesopus	15	Prose: varia	-450
Alcman	15	Poetry: lyr.	-600
Aristoteles	14	Prose: phil.	-350
<i>Anthologia Graeca</i>	12	Poetry: lyr	-100 <sup>17</sup>
Aratus	12	Poetry: ep.	-250
Bacchylides	11	Poetry: lyr.	-450
Galen	11	Prose: med.	+200
Astrampsychus	10	Prose: varia	+300
Lysias	10	Prose: rhet.	-400
Euphorion	10	Poetry: ep.	-250
Stesichorus	9	Poetry: lyr.	-550

### Tier 3: Sporadic but perhaps significant survival (5–7 fragments) – 18 authors

Achilles Tatius	7	Prose: novel	+150
Aelius Aristides	7	Prose: rhet.	+150
Epicharmus	7	Poetry: com.	-450
Euclides	7	Prose: math.	-300
Eupolis	7	Poetry: com.	-450
Hyperides	7	Prose: rhet.	-350
Ptolemaeus math.	7	Prose: math	+150
Simonides	7	Poetry: lyr.	-500
Alcidamas	6	Prose: rhet.	-400
Anubion	6	Poetry: ep.	-50
Dioscorides	6	Prose: med.	+50
Lycophron	6	Poetry: trag.	-250
Anacreon	5	Poetry: lyr.	-550
Antimachus of Colophon	5	Poetry: ep.	-400
Hipponax	5	Poetry: lyr.	-500
Oppian	5	Poetry: ep.	+150
Philo	5	Prose: phil	+0
Strabo	5	Prose: geog.	+0

massive corpus was preserved *for a reason*. This is typical of the way in which the later choice to preserve authors into the main manuscript transmission can be predicted directly from the papyrus selection. The ranking – stable. More on this below!

<sup>17</sup> “*Anthologia Graeca*” is an author field in CEDOPAL’s filing system, and so for consistency’s sake I include it here; this is of course, in the ancient context, a composite category, so what we find here is a lump of truly minor poets, not a fairly widespread, single anthology. In other words, this is not a “tier 2” author.



**Tier 4: Sporadic survival (2–4 fragments)<sup>18</sup> – 41 authors**

**4 fragments:** Astydamas (poetry: trag., –350); Babrius (poetry: lyr., +200); Chariton (prose: novel, +50); Dionysius Thrax (prose: tech., –150); Rhianus (poetry: ep., –250); Theophrastus (prose: phil., –300); Theognis (poetry: lyr., –500)

**3 fragments:** Aeschines Socraticus (prose: phil., –400); Antiphon (prose: rhet., –400); Antonius Diogenes (prose: novel, +150); Callisthenes (prose: hist., –350); Cercidas (poetry: lyr., –250); Corinna (poetry: lyr., –500); Cratinus (poetry: com., –400); Dinarchus (prose: rhet., –300); Dionysius Scytobrachion (prose: tech., –250); Libanius (prose: rhet., +350); Lollianus (prose: novel, –100); Lycurgus (prose: rhet., –350); Nicander (poetry: ep., –150); Nicarchus II (poetry: lyr., +50); Posidippus of Pella (poetry: lyr., –250); Tyrtæus (poetry: lyr., –650)

**2 fragments:** Apollodorus of Athens (prose: tech., –150); Arrian (prose: hist., +150); Choerilus (poetry: ep., –400); Chrysippus (prose: phil., –200); Critias (poetry: trag., –400); Dionysius (bassarika) (poetry: ep., –250); Ephorus (prose: hist., –350); Herodianus (prose: tech., +200); Herondas (poetry: lyr., –250); Isaeus (prose: rhet., –350); Pancrates (poetry: ep., +150); Parthenius (poetry: lyr., +0); Philemon (poetry: com., –300); Satyrus (prose: hist., –300); Sophron (poetry: com., –400); Timotheus of Miletus (poetry: lyr., –400); Triphiodorus (poetry: ep., +300); Tryphon (prose: tech., +0)

**Tier 5: Currently hapax papyrus authors – 76 authors**

Here I prefer not to quote the list at all, as, taken individually, the names are misleading: there is not much of a difference between surviving in one papyrus fragment and zero. As a group, however, those authors acquire meaning. Of the 76 authors, 61 are prose authors and 15 are poets;<sup>19</sup> this appears meaningful. Indeed, we should compare now all five tiers, as wholes.

<sup>18</sup> It is misleading to think of this part of the list as in any sense “canonical”: the evidence is compatible with the author being rare in antiquity. To signal the different meaning of the list, I no longer present it in table form but in a paragraph format.

<sup>19</sup> The names, without elaboration, are: Africanus (Julius), Anatolius, Anaximenes rhet., Andocides, Antiochus of Syracuse, Antipater of Tarsus, Antiphanes, Appianus, Areius, Aristodemus, Aristophanes of Byzantium, Aristoxenus, Artemidorus, Ausonius, Carcinus, Chares, Charisius, Conon, Cornutus (L. Annaeus), Ctesias, Didymus, Dio Chrysostomus, Diodorus Siculus, Empedocles, Eratosthenes, Erinna, Eudoxus, Favorinus, Gregorius of Corinth, Gregorius of Nyssena, Harpocration, Hecataeus, Heliodorus med., Heliodorus novel, Hellanicus, Heraclides gramm., Heraclides Lembus, Hermarchus, Hermesianax, Herodotus med., Hierocles, Himerius, Hippolytus, Ibicus, Josephus, Leo gramm., Lucianus, Manetho, Meleager, Menelaus, Mnasalces, Moschus, Musonius Rufus, Nechepso, Nonnus, Olympius med., Pamprepius, Pherecydes, Philaenis, Philicus, Philostratus, Phlegon, Phoenix, Polybius,

	Poetry % (authors)	Prose % (authors)	Average date
Tier 1	59	41	−410
Tier 2	59	41	−350
Tier 3	56	44	−220
Tier 4	49	51	−180
Tier 5	20	80	−90

The central observation out of this table is straightforward: canonicity, in antiquity, was associated with more performative genres, such as poetry and rhetoric. In a way, this book is a series of observations on this correlation.

Higher up, the papyrus evidence is more poetic, more anchored in the classical era. Lower down, it is constituted more by prose, and by later works. It seems reasonable to extrapolate the table further, with a surprising result: it seems very likely that the bulk of the authors circulating in antiquity in small numbers – those who currently are not among the identified papyri – would be prose authors of the Roman era. More on this below, especially in [Part III](#).

In some other ways the top names in the tables themselves offer few surprises. It is well known that the papyri are heavily dominated by Homer, and that in general the “canonical” authors are indeed very frequent; it is also widely recognized that, among the authors not transmitted via the manuscript tradition, Menander is extremely frequent in the papyri. So this first table is not inherently surprising. What is perhaps worth noting is its most obvious feature: it is a *descending* list of *authors*. Take the “authors” first. Whereas the typical medieval codex is often an anthology in character – a collection organized typically by subject matter<sup>20</sup> – the elementary unit of ancient literary culture was a roll containing a work by a single

Posidippus com., Posidonius, Pythagoras, Sextus Pythag., Simias of Rhodes, Soranus, Sosylus, Strattis, Themistius, Theon gramm., Theon rhet., Theopompus. To clarify: this is the list of one-fragment authors from 2011 (in my recounting of numbers of fragments, I went through all the authors of tiers 1 to 4 and recounted them; it should be noted that already in tier 4 the changes found were minimal, so continuing this work seemed otiose, though doubtless it would have come up with a few minor changes).

<sup>20</sup> To make a suggestive comparison: I have made a survey of (1) a random selection of Paris codices in the ancient exact sciences in Greek, Latin and Arabic (random: selecting all the manuscripts whose inventory number divided by five) and (2) all the Laurentian and Vatican Greek codices in the ancient exact sciences. A total of 98 codices include works on a single topic by various authors, while 19 include multiple works by the same author; 71, with a single treatise each, cannot be classified in the same way. We find that, when codices in the exact sciences join together several works, relatively little effort is made to keep together works by the same author, but there is a common practice of bringing together works on a single topic. That my example involves a technical field is of course significant: the codex, unlike the roll, did often collect technical (or, in the most frequent case, liturgical) works.

author. Often the roll would contain a part of a work (hence the division into “books” we are familiar with from modern editions), and sometimes it would contain more than a single work by the same author. But a multi-authored volume, with multiple works by *different* authors, is extremely rare.<sup>21</sup> Of the 413 papyri in the sample studied in Johnson (2004), only one contains works by more than one author (P.Lond. Lit. 134+130, Demosthenes and Hyperides). Obviously, our finds are fragments, and so it is possible that we merely hit upon one work contained in a roll and that elsewhere on the same roll a different author is represented; the numbers appear robust, however, even with this taken into consideration.<sup>22</sup>

We find that the ancients collected authors. This is made even more evident when we bring in the other obvious feature of this table: its rapid descent. Imagine, for instance, that ancient readers were interested in having the various genres represented in their book baskets, so that they made sure they had tragedy and comedy, elegy and prose, philosophy and medicine; but they couldn’t care less which authors they happened to own

<sup>21</sup> Anthologies in the strict sense, with brief extracts from many individuals, are also quite rare (fewer than 100 fragments are identified: but this must be an undercount, as fragments with a single work could derive from anthologies). More importantly, they derive mostly from the context of education and were not collected as “books”; I return to discuss this on pp. 42–3 below. The evidence of the titles is relevant; based on Caroli (2007) I have surveyed 61 extant book titles: all of them specify a single author, unsurprisingly, as they almost always specify a single work (an interesting exception is Caroli, 203–4, P.16, P.Ant. I 21 – an external etiquette: “Pindar, whole” [the name, exceptionally, is in the nominative and not the genitive: perhaps kept on a box with multiple rolls]). None specifies multiple authors. The evidence is suggestive but not dispositive, because multiple-author works might theoretically have had, instead, multiple individual titles scattered through them. I return to discuss this evidence on pp. 80–1 below.

<sup>22</sup> I estimate the average survival of columns out of original rolls, based on Johnson (2004, tab. 3.7), as about 3 to 5 percent. (I say “estimate” because I did not sum up the entire table – I do not have the original spreadsheet – and so, to make the calculation practical, I took a sample of every sixth entry and derived the result: 3.86 percent. The error introduced by this sampling is smaller than the range of 3 to 5 percent – which I adopt because there are other sources of error in Johnson’s original sample). In other words, each papyrus fragment has about 4 percent probability of hitting upon the transition from one author to the other (assuming there is just one; the probability is higher if there are multiple such points. Also, many papyrus fragments cover non-contiguous text and so “stretch out” across more than 4 percent of the original papyrus; further, they tend to come away from the end/beginning – see p. 80, n.137, below – raising further the probability that they might detect transitions between authors). At face value, then, we would have expected to find 20 or so transitions within 413, while we find one. Likely, then, most ancient rolls did not contain more than a single author. Finally, it should be said that P.Lond. Lit. 134+130 is a very atypical roll of more than a single scribe and huge dimensions. As for the report based on Tzetzes, according to which the “palace library” in Alexandria had 400,000 “mixed” rolls and 90,000 “unmixed” rolls (Kaibel CGF 19; discussed in Fraser, 1972: II.485 nn.170–7; see the more critical discussion in Bagnall, 2002: 351–2, however), all I can say is that the evidence of the papyri suggests something is seriously wrong with this passage – whose numbers, anyway, are clearly stylized. Did Tzetzes have in mind the conditions of the codices of his own time and place?

in the various genres. The resulting curve would have been much less steep in that case: we learn, therefore, that ancient readers did not collect *genres* but, instead, collected *names*, showing a marked preference for just a few.

The next set of tables is perhaps somewhat less familiar. In what follows, I consider the numbers not for authors but for works, picking out only those works for which six or more fragments survive (with a few extrapolations thrown in).<sup>23</sup> Instead of providing raw fragment counts, though, I divide the number of fragments by the word count (which I estimate in some cases). I also adjust for the different format of prose and poetry. Thus, the following table provides a basic outline of the relative numbers of copies for given works. The rationale is obvious: when two works of the same length are represented, one by 20 fragments but the other by ten fragments, the simplest assumption is that the work with the more fragments had twice as many copies. Conversely, when two works are represented by the same number of fragments, but the length of one was 10,000 words while the length of the other was 100,000 words, the simplest assumption is that the shorter work had ten times more copies. I divide the list into tiers, in an obvious way.

		Pap. count	Word count	Pap./word × 1,000 (including prose adjustment) <sup>24</sup>
<b>Tier 1: The <i>Iliad</i> (24 rolls)</b>				
Homer	<i>Iliad</i>	1,557	115,477	13.5
<b>Tier 2: <i>Odyssey</i>/Hesiod level; roughly 20 to 30 percent of the <i>Iliad</i> (32 rolls)</b>				
Isocrates	<i>Nicocl.</i>	30	3,119	12 <sup>25</sup>
Isocrates	<i>Demon.</i>	23	3,000	9.5

<sup>23</sup> A set of six, in and of itself, has no statistical value. The set of all works with six or more surviving fragments is already a useful object to consider, however, and it is valuable to consider the broad patterns of the order of frequency within the set. In this case I reproduce the numbers based on the count from 2011. Since then CEDOPAL has changed its interface, so searches by individual works are no longer practical. Since, in this table, what interests us are the relative frequencies, and I have established in my comparison of papyrus numbers per author in the previous table that those were overall very stable, this should not come as a problem (the author who changed most from 2011 to 2018 – Plutarch – did so through many different works and so would not be visible in this table).

<sup>24</sup> I calculate, based on Johnson (2004: tab. 3.7), that poetry would have on average something like 25 percent more papyrus footprint per word. I thus adjust the prose numbers up by 25 percent (the sheer count by words tends to overestimate the frequency of poetry, as it occupies more papyrus for the same amount of words and therefore is more likely to be present on the papyrus evidence).

<sup>25</sup> It appears that the survival of Isocrates’ exhortations on papyrus is almost entirely a phenomenon of the classroom; hence those numbers are the most misleading. I return to discuss this on p. 42 below.

(cont.)

Hesiod	<i>Theogony</i>	40	6,969	5.75
Hesiod	<i>Works and Days</i>	32	5,900	5.5
Demosthenes	<i>Olynth.</i>	28	6,350	1.5
Homer	<i>Odyssey</i>	283	87,765	3.25 <sup>26</sup>
Demosthenes	<i>Chers.</i>	10	4,291	3
Hesiod	<i>Shield</i>	9	3,336	2.75
Euripides	<i>Phoe.</i>	28	10,477	2.75

**Tier 3: The Menander/Hellenistic range; roughly 10 to 20 percent of the *Iliad* (17 rolls)**

Isocrates	<i>Peace</i>	17	8,278	2.5
Callimachus	<i>Hymni</i>	17	7,443	2.25
Hesiod	<i>Catalogue</i>	58	27,800? <sup>27</sup>	2?
Menander	<i>Epitrepontes</i>	14	7,000? <sup>28</sup>	2?
Menander	<i>Misumenus</i>	14	7,000?	2?
Demosthenes	<i>Philip.</i>	21	14,300	2
Aeschines	<i>Ctesiph.</i>	27	19,171	2
Aratus	<i>Phaen.</i>	14	7,867	1.75
Euripides	<i>Orestes</i>	19	10,753	1.75
Isocrates	<i>Paneg.</i>	16	11,249	1.5
Callimachus	<i>Hecale</i>	13	9,000? <sup>29</sup>	1.5?
Euripides	<i>Androm.</i>	12	7,763	1.5
Euripides	<i>Medea</i>	12	8,394	1.5

**Tier 4: The normal Demosthenes/Aristophanes range; roughly 5 to 10 percent of the *Iliad* (42 rolls)**

Euripides	<i>Hecuba</i>	9	7,676	1.25
Apollonius	<i>Argon.</i>	52	39,090	1.25 <sup>30</sup>
Theocritus	<i>Idyl.</i>	24	20,501	1.25

<sup>26</sup> It will be noticed that the sum of the *Iliad* and the *Odyssey*, in this table (based on 2011 numbers), is higher than the figure for Homer as a whole from the previous table (based on 2018 numbers). This paradoxical result is the outcome of CEDOPAL's choice, between 2011 and 2018, to remove "homerica" (grammatical and purely educational material) from the category of Homer. (See below, also, a similar effect with Aratus: there are now only 12 Aratus counted, but 14 were counted in 2011, because CEDOPAL has improved its filtering for false attributions and double-counting.)

<sup>27</sup> 4,000 lines is a standard guess (Osborne, 2005: 6). I extrapolate based on word and line counts from extant Hesiodic works.

<sup>28</sup> I simply resort to the desperate measure of considering the *Dyskolos* "typical".

<sup>29</sup> Hollis (1990): from c. 900 to c. 1,800 lines? Extrapolating from the *Argonautica*, we get 6,000 to 12,000 words, from which I take the mid-point.

<sup>30</sup> Here is a good example of how stable the results are. I found 52 Apollonius fragments in 2011; now there are 55. But at the level of granularity which matters to us here – rounding the fraction pap./1,000 × words to the nearest 0.25 – this difference simply does not register at all.

(cont.)

Demosthenes	<i>False Leg.</i>	25	23,576	1.25
Demosthenes	<i>Crown</i>	24	22,893	1.25
Aeschines	<i>Timarch.</i>	14	13,961	1.25
Demosthenes	<i>Lept.</i>	10	11,543	1.25
Demosthenes	<i>Midias</i>	14	16,013	1.25
Hippocrates	<i>Aphor.</i>	6	7,374	1.25
Euripides	<i>Bacchae</i>	8	8,207	1
Aristophanes	<i>Nubes</i>	8	10,463	1
Menander	<i>Dysc.</i>	7	6,693 <sup>31</sup>	1
Demosthenes	<i>Timocr.</i>	11	14,896	1
Callimachus	<i>Aetia</i>	33	30,000? <sup>32</sup>	1?
Menander	<i>Pericir.</i>	6	7,000?	1?
Archilochus		18	21,000? (4 r.?)	1? <sup>33</sup>
Pindar		57	90,000? <sup>34</sup> (17 r.)	0.75?
Aristophanes	<i>Achar.</i>	6	7,818	0.75
Euripides	<i>Hippo.</i>	6	8,647	0.75
Aristophanes	<i>Equites</i>	7	9,764	0.75
Aristophanes	<i>Plutus</i>	7	8,864	0.75
Aristophanes	<i>Pax</i>	7	8,796	0.75
Aeschines	<i>False Leg.</i>	8	12,758	0.75
Thucydides		96	153,260	0.75
Lycophron	<i>Alex.</i>	6	7,527	0.75
Anubion		6	?	0.75? <sup>35</sup>

<sup>31</sup> This text has some small lacunae; but this is probably true of many other texts with “normal” survival.

<sup>32</sup> I make the desperate assumption that the work would have been somewhat shorter than the *Argonautica*.

<sup>33</sup> Did Archilochus’ work circulate in four rolls, one for each of his main genres (see, e.g., Tarditi, 1968: 15)? Were the rolls as small as they seem to be for some other lyric poets? If so, we should project a rather significant penetration, higher even than Pindar’s. Archilochus was indeed a decisive influence in the canonization of lyric poetry, as we will note below, and so the result is not impossible. (My hunch is that Archilochus’ rolls were longer than the lyric average: if his poems really were squeezed into four rolls, this was done so as to fit a generic definition.) Was he “actually” more important than Pindar? Or perhaps better put: the ranking of the lyric poets was not as rigid as that of authors in other genres (see more on this on pp. 67–8 below).

<sup>34</sup> Assume that the Theognid collection represents the equivalent of two ancient bookrolls (the text itself was extremely unstable; see the summary in Lane Fox, 2000: 46–7, but apparently circulated in roughly the same scale as that transmitted through the manuscript tradition); then the Theognid poems and the extant Pindar cover roughly 32,000 words for six books, or roughly 5,300 words per book, which I use for my calculations.

<sup>35</sup> The fragments comprise 3,060 words while the much-abbreviated prose paraphrase has 3,222 words. A ratio of 0.75, implying roughly 8,000 words in the original, seems reasonable.

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**Tier 5: Lyric, philosophy and history; less than 5 percent of the *Iliad* (more than 100 rolls)**


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Plato	<i>Phaedo</i>	11	22,633	0.5 <sup>36</sup>
Plato	<i>Phaedrus</i>	8	17,221	0.5
Isocrates	<i>Antid.</i>	7	18,731	0.5
Alcaeus		28	53,000? (10 r.)	0.5?
Sappho		23	47,500? (9 r.)	0.5? <sup>37</sup>
Alcman		15	26,500? (6 r.)	0.5?
Ptolemy	<i>Handy Tables</i>	6	(n/a) <sup>38</sup>	0.5?
Astrampsychnus		10	?	?
Aesop		14	46,077	0.25 <sup>39</sup>
Herodotus	<i>Hist.</i>	47	189,489	0.25
Achilles Tatius	<i>Leuc.</i>	6	43,440	0.2 <sup>40</sup>
Plato	<i>Republic</i>	12	89,358	0.15 <sup>41</sup>
Xenophon	<i>Mem.</i>	6	36,426	0.15
Xenophon	<i>Cyr.</i>	13	80,684	0.15

<sup>36</sup> This level of 0.5 is probably also that of the somewhat less central plays by Euripides (for instance, Crespontes, Heracles, Iphigenia T., Telephus, Alcestis, Cretenses, Hypsipyla, Iphigenia Aul. and Trojan W. all have three to four fragments: identifications not always secure and numbers not significant, but the sense that there were plenty of quite widely circulating plays by Euripides is clear) as well as by Menander (Samia, Georgus, Aspis, Colax and Sicyonioe all have three to five fragments). One would probably also have encountered Sophocles or even Aeschylus at this stage: Sophocles' Ajax and Oedipus Rex have three to four fragments. For the incredible result, that Aeschylus' rare fragments are mostly of the lost drama and that there are not more fragments of the Oresteia, see Morgan (2003); the point is that collection of Aeschylus was an especially erudite project: more on this on pp. 49–50 below.

<sup>37</sup> For reasons explained on p. 81, n.139, below, I wonder if her rolls were not especially short, so that her works in fact had higher circulation, perhaps comparable to Pindar?

<sup>38</sup> TLG's word count is 5,239, which misses the mark of the actual extent on papyrus, however, since this work is composed of tables. I just multiply by three to get the sense of three rolls (30 meters is Jones' count, in Swerdlow, 1999: 315, from which, based on Johnson, one derives three rolls).

<sup>39</sup> Even this number is an overcount, however: the bulk of the "Aesopian" fragments are brief citations from the classroom context. Kurke (2011) suggests that Aesop provides an example of popular literature, appropriated by elite rhetorical education, which is of course possible, but I am not sure the evidence is inconsistent with Aesop's text being, right from the beginning, primarily an anthology for schoolroom use.

<sup>40</sup> This number needs to be adjusted for the chronological reasons explained above for Plutarch: the ancient novel had a smaller chronological range in which to circulate. Indeed, as Cavallo (1996) points out, the circulation of the ancient novel was above all a phenomenon of the Imperial era, adding somewhat to the chronological adjustment: instead of 0.2 the number should be 0.4 or 0.5. Indeed, it appears that a number of novels circulated at this level or just beneath it. The question of the circulation of the novel has been discussed by Stephens (1994), who argues for its relative infrequency; the argument is bolstered by considering the sheer length of ancient novels. Even so, we find that during their heyday the most popular novels circulated about as widely as Plato did, perhaps more than Herodotus: an elite genre no doubt – that is Stephens' argument – and certainly not on a par with the central performative canon, but, for all that, a fairly popular genre.

<sup>41</sup> As I will point out below, it is likely that the entire works of Plato circulated roughly at this frequency.

(cont.)

Bacchylides		14	90,000? <sup>42</sup>	0.15?
Euclid		6	(n/a)	0.1? <sup>43</sup>
Stesichorus		9	100,000? <sup>44</sup>	0.1
Xenophon	<i>Hell.</i>	7	67,924	0.1
Plato	<i>Laws</i>	9	106,297	0.1

The first set of tables, counting total fragments per author, measures the sheer papyrus footprint of an author. This second set of tables looks at the rate of penetration of a given work. Using the simplified assumption of no more than one copy of a work per household (I will return below to qualify this assumption), this may be considered a measure of the relative number of households in which the work could be found.

This set of tables is more surprising, because we do not normally pause to consider the sheer bulk of some of the works circulating in antiquity. Two types of works are especially bulky, at the two ends of the circulation pattern. At the top: Homer wrote *long* epics. Thus Homer's enormous papyrus footprint implies a less sharp break at the rate of penetration: the *Iliad*, indeed, was more widely circulated than any other work, but not so much more as implied by sheer fragment counts. At the bottom: Greek non-performative prose, we notice, tends to be much bulkier than other Greek forms (where the single-roll size, or at most a few rolls, is often appropriate: a speech, a drama, a dialogue; also, a small epic, a collection of lyric poems).<sup>45</sup> Thus, for non-performative prose, large papyrus footprints are compatible with fairly modest rates of penetration.

All this should be used to supplement, not replace, the evidence of sheer papyrus footprint. Was Plato not canonical? Of course he was: it is very remarkable that a significant number of households may have collected the entire works of Plato, so that we need to say that his canonicity took the

<sup>42</sup> In date and range of work – though of course not in his impact – he is comparable to Pindar. For this reason, and also in view of the substantial number of fragments, I use arbitrarily the number (arbitrarily calculated) for Pindar.

<sup>43</sup> TLG's word count for the *Elements* is 155,536; but it appears clear that several of the Euclid fragments are from a schoolroom epitome. The entire exercise is at its most fictional in this case: we learn not only that Euclid was extremely rare in book collections but also (more surprisingly) that he was not that rare in the classroom.

<sup>44</sup> Stesichorus could well have been an especially ample lyric poet, with near-epic proportions (West, 1971). "A little more than Pindar" seems justified.

<sup>45</sup> The two observations may well be related: the pattern for very long works in non-performative prose was set by Herodotus, certainly among other things as a claim for Homeric status (for the innovation of Herodotus' bulk, see Flory, 1980).



form of *an extensive collection by relatively few collectors*. Indeed, the division into tiers of penetration, and especially the contrast between the top four tiers and tier 5, suggests a division into two ideal-type libraries: (1) libraries which collect just the canon in the narrow, performative sense (Homer, and then – not that far behind – early poetry and performative prose, by a few major authors); and (2) more specialized libraries with much larger holdings, where one also finds philosophy, history and lyric poetry as well as the minor authors from the more central genres. Some authors were canonical in that they could be found in the ideal-type small library; others were canonical in that they could not be omitted in the ideal-type big library.

We end our observation of the basic papyrological data with two oppositions: between the performative and the non-performative (it is the performative which tends to get canonized), and between the small library and the big library. The relationship between these oppositions will engage us for the remainder of the book.

## 1.2 The Significance of the Data from the Papyri

### 1.2.1 General Remarks

Conclusions, already! But can the evidence support them? The rest of the chapter will have to be, among other things, methodological, defending the use of literary papyri for statistical purposes.

It is rare to see the question explicitly addressed. One often finds casual notices of papyrus counts – mostly by non-papyrologists – used as evidence for an author's popularity.<sup>46</sup> Papyrologists, on the other hand, regularly advise caution, insisting on the danger of statistical extrapolation from the papyri.<sup>47</sup> Sustained efforts at the interpretation of the papyri as statistical sources are less frequent and do not engage in arguments for the validity of such a use.<sup>48</sup> Thus we are left with a blanket admonition of caution, which,

<sup>46</sup> Two examples taken at random: Csapo (2010: 143): "Statistics from papyrus-finds make Menander the third most purchased or copied poet after Homer and Euripides"; Pelliccia (2009: 248): "This proportion [the Epinicians, about a quarter of Pindar's poetry] corresponds to...the papyri surviving from before the mid-third century CE" (exaggerated, in my view; see p. 122, n.52, below).

<sup>47</sup> I will return to cite more on this below. This is not just a tendency of the past: a recent work such as McNamee (2007) dedicates most of its introduction to the discussion of "the evidence and its limitations", going through the central points of papyrological caution: provenance in the periphery of Greek culture; haphazard finds; large chronological span.

<sup>48</sup> I note a few: Stephens (1994) (the ancient novel was an elite genre); many works by Cavallo, in particular 1997 (late antiquity) and 1996 (once again, primarily the novel). Morgan (2003) is the study most directly focused on the statistics of papyri, but her subject matter is, cautiously, the

salutary as it is, offers but a poor substitute for proper methodological discussion.

How come the scholars of literary papyri give this question so little space? This is a question about the history of the discipline. And so I have followed this through a survey of *Proceedings of the International Congress of Papyrology*, starting in 1928.<sup>49</sup>

Until the mid-1960s we see mostly technical descriptions of collections (e.g. Collart, 1935: “Les papyrus inédites de la Faculté des lettres de Paris”) alongside generalist papers on Greco-Roman Egypt (e.g. Kerényi, 1935: “Die Papyri und das Wesen der alexandrinischen Kultur”). By the mid-1960s, however, the gentlemanly talks dedicated to broad characterization had largely disappeared. Their place was taken by studies in social history, using documentary sources; or the editions of individual literary papyri. On the one hand, papers such as Lewis, 1965, “Exemption from Liturgy in Roman Egypt”, on the other hand papers such as Gigante, 1965, “Nuovi resti dell’ode Pindarica *nomos pantōn basileus* (P.Oxy. 2450)”.

The 1960s were a period of professionalization in the humanities as a whole. In papyrology, the study of documents *professionalized outwards*, while the study of literary texts *professionalized inwards*. (This, indeed, may be true of the discipline of classics as a whole, history and literature bifurcating with the coming of academic professionalization.) Documentary papyri gained a world of meaning when viewed from the perspective of a more sociological history of the quotidian, and so documentary papyrologists were quick to join post-war developments in the discipline of history. The study of literary papyri, on the other hand, seemed to have little to gain from structuralism or from “new criticism”, and the scholars of the papyri of, say, Greek lyric, stood back from an alien world of literary theory. Things have changed since: but it should be emphasized that, when papyrologists sum up, even now, the potential contribution of the evidence of papyri for the study of ancient literature, they most often limit themselves to the discovery of new texts and to the study of the textual history of known works. This is

spread of tragedy *in Egypt*. She thus avoids the much more difficult problem of extrapolation from Egypt to ancient culture as a whole.

<sup>49</sup> I have chosen this as a relatively small corpus, which is, however, a venue where scholars discuss issues of fundamental importance, as they see it, to the discipline. Other venues, such as the *Zeitschrift für Papyrologie und Epigraphik*, tend to be much more dominated by isolated, technical works.

a supremely philological enterprise.<sup>50</sup> This perhaps should not come as criticism: the 7,000 published literary papyri are 7,000 monuments to heroic scholarship.<sup>51</sup>

I suspect part of the resistance to statistical mining of the papyri emerges from some elemental resistance to probability as such. We may start by quoting Turner (1968). Here is his remark, following upon a description of the fortuitous nature of the Oxyrhynchus discovery (1968: 30):

[I]n view of the present-day trend to statistical treatment of data from papyrus finds,<sup>52</sup> it is important to show the extent to which caprice governs the survival and discovery of papyri of any given epoch.

Or we may consider a footnote from one of the more quantity-friendly of ancient historians, Hopkins (1991: 133 n.2):

The survival ratio, the ratio of texts surviving to those ever produced, is clearly a critical dimension. . . Consider the following: the Romans conducted 17 censuses. . . and we have less than 1,000 surviving census returns [so] the survival ratio is c. 1:12,000. . . 3 surviving copies of the Oracle of the Potter could mean anywhere between 3 and 35,000+ originals.<sup>53</sup>

Both Turner and Hopkins make valid points. Turner is right that, in treating samples, we should consider their bias, and when the specific nature of the bias is hard to establish we must bring more caution into the sample's interpretation. Hopkins is right about the numbers – indeed,

<sup>50</sup> So the various contributions by Haslam, Luppe, Manfredi and Parsons (1992), summing up the field in the 20th congress (dedicated to celebrating 100 years of papyrology); and Renner (2009), in the recent *Oxford Handbook of Papyrology* (Bagnall, 2009a).

<sup>51</sup> Criticism or not, the above of course was a generalization, most valid for just one generation and allowing for major exceptions. In Italy and France, especially, a tradition was developed of studying the papyri for the light they throw on reading practices or “the history of the book” (benefiting, then, from contemporary trends in French and Italian historiography, inspired by the seminal Febvre and Martin, 1958). Cavallo has been leading this type of research since the 1960s, and his book (with Capasso) from 1983, *Libri, scritture, scribi a Ercolano*, is the first major landmark in this tradition. It is joined by others, of which some are very important to this study: McNamee (1995) and elsewhere for the practices of commentary; Criboire (1996 and later publications) and Morgan (1998; 2003) for the practices of education; and Blanchard (1989) for ancient book collection practices. Most recently, Johnson has produced both a study of the bookroll and its scribes (2004) and a study of the bookroll and its readers (2010); Dorandi (2007) is fundamental to the study of authorial practices based on the evidence of the papyri. Structuralism, post-structuralism and historicism have all gone by, and literary papyri finally re-emerge to join a contemporary trend in literary studies.

<sup>52</sup> What did Turner have in mind? Perhaps he was reacting to the first tentative steps towards the digitization of the study of papyri, proposed as soon as computing resources began to be available around university campuses (see, e.g., Tomsin et al., 1973).

<sup>53</sup> Compare also Bagnall (1996: 103): “It is doubtful that the audience for [the literary] authors exceeded a few thousands in all of Egypt in any period, after all, and the survival of their manuscripts out of many millions of papyri of all kinds is a very chancy affair.” Evidently, the fact that there were originally *many millions of papyri* is seen as materially weakening the significance of the sample.

this quotation from him is the best entry point I am aware of into the problem of the absolute scale of writing in antiquity. We shall consider it in much greater detail in [Part III](#). But both Turner and Hopkins also appear to me to be not far removed from relying on layperson's misperceptions of the use of statistics. The layperson's belief is that, in order to find out about large groups, we need to have as large a selection as possible; and that we should intentionally select as "representative" a selection as possible, and not let it be formed by sheer chance. It appears as something of a black art, for example, that one can call strictly at random no more than a thousand or so households in the entire United States, and be able to tell within a few percent the fraction that will vote for each of the candidates for the presidency. But such miracles happen regularly, for a good reason: samples should be governed, as far as possible, to use Turner's terms, by sheer caprice; they need not be very large, and it certainly hardly matters in what ratio they stand to the original set. The significance of a sample derives almost entirely from the combinatorics, hence the probabilities, of the set itself. The absolute sample size matters a lot: a few hundred are good to have, and a thousand or so are perfect for most purposes. The same numbers would do almost equally well to find out about political affiliation in a polity as big as the United States or as small as Switzerland. And the more random the selection, the better.

We should therefore note immediately that the papyri dug in Egypt form by now a very large sample. They are not a perfectly random set (indeed, true randomness is rare anywhere, and, in some metaphysical sense, impossible: this is the main challenge in the application of statistics to *any* field). But, as we shall see below, they come close.

The size of the sample is big. Indeed, it has been big for a long time now. I study papyri based on two online databases, LDAB and CEDOPAL; the latter is the digitized version of a system of cataloguing pagan literary papyri first developed by Roger Pack in 1952 and then expanded in 1965. Before Pack, papyrologists relied on C. H. Oldfather (1923).<sup>54</sup> It is instructive to consider this early publication. Oldfather has 1,167 literary papyri to catalogue.<sup>55</sup> Not that many, perhaps, and Oldfather's was not even meant

<sup>54</sup> Oldfather never got established as a unique standard reference, however, in the way in which Pack did. The field of papyrology was dynamically evolving, visibly so; an annual publication – *Bibliographie Papyrologique*, instituted by Marcel Hombert in 1932 (similar in conception to the more familiar *Année Philologique*) – was the preferred resource.

<sup>55</sup> The – troubled – three decades between Oldfather and Pack saw the publication of a little over 1,000 literary papyri, or 41.5 per annum (Pack, 1952, had 2,369 entries). Thirteen years later Pack's second edition already had 3,026 – a growth of 50.5 per annum. About 50 years later we have 4,000 papyri more, so the rate has been going up steadily (thus, the seven years between the first and second

strictly as a catalogue (unlike Pack, as well as Mertens following him, who set out to produce a comprehensive, accessible list). Oldfather's motives were different. This, his PhD, followed a project suggested by W. L. Westermann but, I suspect, motivated by Michael Rostovtzeff.<sup>56</sup> Oldfather conceived of his project as, primarily, an opportunity to use the accumulated evidence of papyri as a window into Hellenistic and Roman civilization.

Oldfather was patently naïve, in papyrology and statistics as well as in Hellenistic history. The PhD was his only genuine scholarly contribution.<sup>57</sup> And yet the point is that many of Oldfather's observations hold surprisingly well. The most important are these: the close correlation between texts used in the classroom, and elsewhere; and the overall continuity of literary taste across the centuries. We will soon return to consider those two observations in more detail. Oldfather further listed as the most frequent authors, in order (Oldfather, 1923: 74): Homer (1), Demosthenes (2), Euripides (3), Menander (6), Plato (7), Thucydides (8),<sup>58</sup> Aristophanes (10), Isocrates (5), Xenophon (14). Within brackets I provide the current standing, with our sevenfold larger pool of papyri. The difference is exaggerated by a simple clerical error in Oldfather's calculations: he did not notice that Hesiod, then with 20 fragments and now with 158 fragments, number 4 on the list, was then as frequent as Isocrates and more frequent than Xenophon (the last had 16 fragments only). We find that

counting I made of papyri – 2011 and 2018 – saw the totals rise by several hundred or a few percent of the total). Yet more papyri await to be published, though the consensus appears to be that, within our collections, we are nearing the bottom of the barrel and that the – rather many – unpublished papyri are usually smaller fragments (Johnson 2004: 3 n.1). But how many still survive underneath Egyptian villages, unexcavated?

<sup>56</sup> Oldfather (1923: vi): "To Professor M. Rostovtzeff of the University of Wisconsin I am especially indebted for his interest in [the study's] completion and for his helpful suggestions."

<sup>57</sup> For more on the person – a fine, old school classicist, devoted above all to translation – see <http://unlhistory.unl.edu/exhibits/show/oldfather>.

<sup>58</sup> In 2011, when I first wrote this passage, Thucydides was slightly above Plato. The fragments published between 2011 and 2018 actually made our statistics fit Oldfather's *better*. This in itself is a sheer anecdote, but its implication is real and should be emphasized: as new fragments came in through the last century, the overall statistics did not gradually diverge away from their original shape but, instead, largely oscillated around a fixed point. I note here further a major consequence. In conversations with colleagues, one reason frequently cited for doubting the statistical accuracy of the papyri is the nature of editorial bias. Many papyri are still unpublished, and so the statistics we have show not only the selection of archaeological fortune but also that of active editorial taste. This is a serious concern, but it is largely dissipated by the evidence of the stability, through the last century, of the major contours of the statistics. The discipline of classics went through a major transformation through the twentieth century; for a generation now (a generation highly fecund in its publication of papyri!) we have come to appreciate the unexpected and non-canonical. And yet the statistics barely budge. The aggregate of editorial choices, probably, did not matter so greatly: for, after all, few papyrologists ever resisted the desire to publish *minor* ancient literature!

nine of our current top ten authors were top ten authors already in 1923. Further, consider Oldfather (1923: 83–4): “[Demosthenes’] absence until the first century BC can very likely best be explained by the lack of organized city life. . . where there was little opportunity for the advocate.” I doubt the interpretation, but the observation is surprisingly robust. Oldfather counted 43 Demosthenic fragments in his table IV. This had a total of 786 papyri. It also had no more than 93 pre-first-century papyri, in total! Now, the simple assumption (assuming no random variation) would have predicted four to five Demosthenes pre-first-century fragments. Oldfather, instead, found zero. The subsets are tiny, however, and a statistician would have recoiled from any conclusion. And yet Oldfather has noted a reality. We now have 204 Demosthenes fragments, and also about 500 pre-first-century fragments out of a total of about 7,000. We would expect by now to have roughly 15 pre-first-century Demosthenes papyri. That we still find *zero* begins to appear meaningful, and I will return to discuss this phenomenon as the most important exception to the rule of Ptolemaic-to-Roman continuity. But what I want to emphasize now is more general: here, again, is a case in which the overall pattern of the evidence was stable, throughout the twentieth century and beyond.

The statistical observations made by Oldfather in 1923 remain valid, almost a century and 6,000 papyri later. The point is that this is essentially unsurprising. A statistician would consider it rather meaningless to expand his random sample size from 1,000 to 7,000. This is perhaps obvious for a statistician but it ought to be spelled out as a specifically papyrological prediction. A word of caution often heard is “Who knows what the future may bring, what the next findings of papyri are going to reveal?”. Now, the expansion of the universe of papyri from 1,000 to 7,000 did not change materially the pattern of frequency among authors. And so, it may be predicted, with considerable confidence, that the same will be true as the universe is expanded further – to 15,000 or 20,000 or even more. A century ago Oldfather has already our statistics; and I think it much likelier than not that, a century hence, the same statistics will still be found. It is of course useful that we now have many more papyri, but this is mostly not for the purposes of the wide observations on papyri as a whole but for the sake of smaller subsets: now, even a set with some 5 to 10 percent of the total papyri can have some statistical significance. This is especially important for our interpretation of Ptolemaic papyri; and, a century hence, we will be able to make even more precise fine-

grained observations. But, for now, the coarse-grained observations stand.<sup>59</sup>

### 1.2.2 Spatial Homogeneity inside Egypt

Size by itself settles nothing. Big samples may be corrupt. And yet one worry we may dispel immediately. Our sample is not flawed with the presence of some big idiosyncratic caches that skew the evidence. This can be seen through a comparison of the Oxyrhynchus evidence with the rest.<sup>60</sup> As a very elementary statistical exercise, I compare the 15 most popular authors, comparing their numbers from Oxyrhynchus and from the rest of Egypt.<sup>61</sup>

Author	Oxyrhynchus	Non-Oxyrhynchus
Homer	846	822
Hesiod	91	67
Demosthenes	89	97
Euripides	79	91
Thucydides	66	30
Menander	61	56
Plato	50	40
Isocrates	46	72
Callimachus	45	38
Aristophanes	27	30
Apollonius of Rhodes	36	20
Aeschines	37	13
Herodotus	26	21
Pindar	40	6
Xenophon	16	26

I promised to avoid statistical jargon, but the correlation coefficient between the two columns is well above 0.99, meaning that, by and large,

<sup>59</sup> Having established this point, I will from now on allow myself to use, without recalculation, figures derived from the 2011 counting of papyri. In many cases such a recalculation would be otiose.

<sup>60</sup> Roughly a half of all literary papyri are *known* to have been found at Oxyrhynchus. Our papyri come from the Nile Valley; within it, Oxyrhynchus was among the bigger cities (not as easy to establish as one would think: Bagnall, 1996: 52–3. Only Arsinoe appears to have been larger, and it is indeed very well represented by documentary papyri). It was also a fairly northern one (if we imagine that sheer proximity to Alexandria made a city closer to metropolitan literary culture – and this seems to be the conclusion of Morgan, 2003 – then this should matter).

<sup>61</sup> “Non-Oxyrhynchus” means not *known* to be from Oxyrhynchus. Many papyri emerge from shady transactions in which provenance is impossible to ascertain. In short, many “non-Oxyrhynchus” papyri may well in fact be Oxyrhynchian. Even so, had Oxyrhynchus (or any other site) been truly distinctive, the contamination of the non-Oxyrhynchian by unprovenanced Oxyrhynchian papyri would not have been enough to mask any genuine discrepancies.

one can use the papyri from Oxyrhynchus to predict how many will be found outside it. A scatter-plot is more useful perhaps (ignoring Homer so as to gain better resolution).

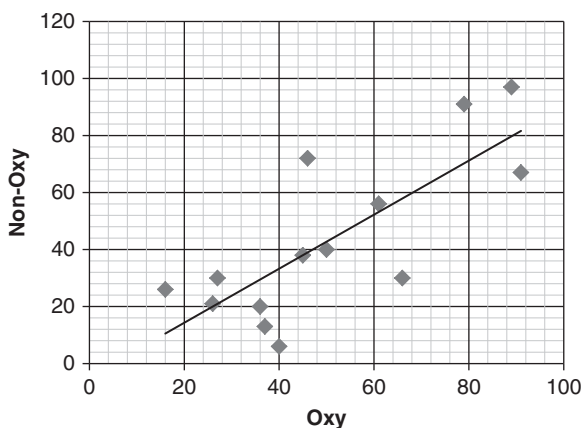


Figure 1.1

Thucydides, Aeschines and especially Pindar are rather better represented in Oxyrhynchus; Isocrates and Xenophon are rather better represented outside it. We do note perhaps a tendency for more sophisticated material to be represented by the more metropolitan center of Oxyrhynchus (Morgan, 2003, documents this in a more fine-grained manner for Aeschylus and Sophocles as well).

And so we note: Oxyrhynchus displayed essentially the same taste as that of the composite of many other independent finds from across Egypt. Whatever biases governed the selection of Oxyrhynchus papyri, then, they would have to be essentially the same as those governing the selection of papyri in the most general terms.

Why is this significant? Suppose one had found Herculaneum's Villa dei Papiri in the Nile Valley rather than in Italy. This would make our sample bigger by about 15 percent (about 1,100 rolls added to our about 7,000), and also much worse. In case you haven't heard of Herculaneum: in the eighteenth century a fantastic site was excavated near Pompeii; buried by the Vesuvian eruption was an entire library (or section of a library). This villa of papyri held a dedicated collection with a single, highly distinctive cache: almost entirely Epicurean and most frequently by a single author,



Philodemus.<sup>62</sup> Suppose, then, we were to add this to our papyri. Would we have to say then that Philodemus was the second most popular author in antiquity after Homer? This would clearly be wrong: the villa would have skewed our data. But, conversely, we also can see, from the table above, that no such distinctive, large find skews our *Egyptian* data, because, had there been one, it would have to be either in Oxyrhynchus or elsewhere – which would have been visible in our data, because, had there been such a preserved Egyptian villa, it would turn out in our evidence as a case of particular authors (popular in that particular villa) being substantially more frequent at either Oxyrhynchus or outside it, depending on where that villa happened to be.

Undoubtedly there are some small caches in our finds, and a few can be identified.<sup>63</sup> And yet we do not find in Egypt big literary caches, for a reason. The Villa Dei Papiri is a freak case of papyrus conserved in situ through disaster. But, for literary papyri, what we have are mostly rubbish dumps, or – for Ptolemaic papyri – the secondary use of papyrus in mummy cartonnage. Our finds were formed not by the wholesale removal of entire libraries but, rather, by the piecemeal culling of isolated rolls that were no longer required (I shall return below to discuss the conditions for such decisions).<sup>64</sup>

We could perhaps expect mini-caches: that is, even if rolls were discarded in small, separate acts, there is no reason to expect them to be discarded strictly individually. One way to look for the traces of such mini-caches is through the small groups of papyri. Tier 4 in the table on page 17 above lists the authors with two to four papyri each. Do they represent two

<sup>62</sup> Zarmakoupi (2010) is a survey of the archaeology and reception of the villa as a whole, with an in-depth article by Sider on the papyri; the literature on the papyri is now enormous, with a journal (*Cronache Ercolanesi*) dedicated to their publication and interpretation, published since 1971. As noted in p. 27, n.51, above, Italian papyrologists, trained in the study of this unique library, have been at the forefront of the study of the ancient book.

<sup>63</sup> Houston (2009: 249–50) lists all known literary caches. The largest non-Herculaneum one has 52 manuscripts (PSI II–12). It is not deeply distinctive in its choice of authors. Aristotle's *Constitution of Athens* was found in an impressive small cache (see details and reference to past literature in Privitera, 2012: 119); it surprising, however, not in its very authors but simply in having a somewhat distinctive variation on the common authors (so, the Athenian constitution itself; also, for instance, not just Demosthenes and Isocrates but also Hyperides...): this is typical of the continuity we do find between big and small libraries. The most distinctive cache is P.Oxy. XVI, Group A (Jones, 1999), 45 astronomical texts. Since, as explained by Jones, astronomical texts are most likely the working materials of practicing astrologers, such a cache is perhaps better understood on the model of a documentary survival (where, indeed, caches are commonplace).

<sup>64</sup> Rolls were typically “shredded” to be more easily carried in a basket, suggesting the simultaneous discarding of several papyri, but not more than a handful. In general, for the discarding of papyri, see Cuvigny (2009).

to four ancient libraries, or are some of these simply two to four papyri being discarded from the *same* library? If the latter, we should expect to see quite a few cases in which the two to four papyri are all from the same provenance and period.

Now, we are not looking strictly for the same century (why not discard simultaneously, say, a mid-second-century book and an early third-century one?); and many papyri are unprovenanced. Thus, we look for a very low threshold. The condition is this: for the given tier 4 author, no more than one provenance should be identified, and the centuries must be at least adjacent.

How low is this threshold? About half the papyri are from the second or third centuries CE and are either known to be of Oxyrhynchus or are non-provenanced. Thus, the null result is pretty unlikely. And yet, our attested numbers appear to support this null result.

	Total number of authors	Could be mini-cached <sup>65</sup>	Null result <sup>66</sup>
4 fragments	7	1 <sup>67</sup>	~1
3 fragments	16	5 <sup>68</sup>	~4
2 fragments	18	7 <sup>69</sup>	~9

In short, the result is likely to be almost entirely random. None of the potential mini-caches are from anywhere other than Oxyrhynchus. Only two are outside the second and third centuries CE. These are interesting: Sophron, with two fragments from the first and second centuries CE (and Sophron represents the precarious transmission of non-Attic drama); Nicarchus II, with three fragments from the first century. Two of Nicarchus’ fragments could simply come out of the same papyrus roll. In general, before us is a very rare case: a Roman-era poet, preserved on papyrus almost immediately upon his activity. I can well believe that his three – or two – fragments represent no more than a single Oxyrhynchus collection. But, if so, his case would be nearly unique. Even when we find no more than two to four fragments of a single author, we are likely to witness more than a single act of discard, from more than a single

<sup>65</sup> In the sense that they are all from a single location, and from the same or adjacent centuries.

<sup>66</sup> In the sense that this is the number likely as a random result. <sup>67</sup> Cratinus.

<sup>68</sup> Aeschines Socraticus, Antiphon, Lollianus, Lycurgus, Nicarchus II.

<sup>69</sup> Arrian, Choerilus, Critias, Pancrates, Satyrus, Sophron, Triphiodorus.

collection.<sup>70</sup> But, if so, it is likely that the bulk of our literary papyri come from a very large number of independent acts of discard.

In all this, literary papyri differ from documentary ones. There were certain types of documents one held on to for a long time, forming gradually personal (family) or more official archives. Such archives could then be deposited en masse, perhaps to be recovered later by their owners or perhaps because there was no longer any need for the archive. Such documentary caches are relatively frequent,<sup>71</sup> and they form an important contrast to the fate of literary papyri. Documents were of use for a generation or two and, when no longer in use, could often be archaeologically cached; books were forever, and so they entered the archaeological record only piecemeal. Literary books: a stable, permanent possession.

We end up with a surprising result: it turns out that literary papyri are statistically more useful than are *documentary* papyri. Indeed, when studying documentary papyri one always has to be wary in isolating the impact of a few caches on one's overall statistics (most obviously, in the impact of the Zenon papyri on our understanding of Ptolemaic documentary papyri; but also in the impact of the Apion estate on our understanding of Byzantine Egypt).<sup>72</sup> Documentary papyri represent a very coarse structure: perhaps about a half derive from isolated acts of discard comparable to those of literary papyri, while something like the other half derive from a mere 150 or so acts of discard that vary enormously in size and content.<sup>73</sup> That documentary papyri are more often treated in sheer quantitative terms, while literary papyri are not, is a consequence of the history of the disciplines that goes against the grain of the data themselves.

<sup>70</sup> This does not mean that there would not be mini-caches; rather, that they involved more frequent – that is, less distinctive – authors (as we see, indeed, from the caches documented in Houston, 2009).

<sup>71</sup> Montevocchi (1988: 248–61, 575–8) lists 135 Greek archives (a scholar of brilliance and caution, Montevocchi never claims that her lists are exhaustive, yet one doubts much more can be added; of course, there are also non-Greek archives, as well as many archives that have not yet been identified). They range in size from a handful of private documents bundled together – for instance, the 14 letters by Apollonius of Bakchias (Smolders, 2004: 233–7) – to the 3,000 documents of the Ptolemaic estate of Zenon.

<sup>72</sup> The best introduction to the Zenon archive is online: [www.lib.umich.edu/reading/Zenon/index.html](http://www.lib.umich.edu/reading/Zenon/index.html). This cache contains the majority of all papyri from the third century (Habermann, 1998: 147). The significance of the single Apion estate for the history of early medieval economy as a whole is enormous (see Hickey, 2012, for the debate), though this may be based not on a statistical argument but, rather, on a wider historical interpretation by which this estate was, indeed, representative of important trends (with a little over 250 papyri, this cache is large but not unique).

<sup>73</sup> Verhoogt (2012: 508): “Many archives are very small. . .but there are about a dozen archives with more than one hundred texts.”

1.2.3 Chronology and Continuity

We do not find caches and our evidence is not skewed in *space*. But is it skewed in *time*? The preponderance of our evidence is (not surprisingly) from the Imperial era, peaking (more surprisingly) not only in the second but also in the (troubled) third century (more on this in [Part III](#)). Perhaps Oxyrhynchus, as well as other similar cities, really did collect Demosthenes more than Xenophon; perhaps really about four to five times as much. But is this true for any period other than the second and third centuries CE?

Let us consider, then, the chronological evidence, this time comparing the dates –300 to +100 with +200 to +500 (I leave a century’s buffer, so as to reduce the overlap: bear in mind that many papyri are dated to a wide range that can easily take up a century or so; also, my unorthodox choice of eras was meant simply to have the sums as close to each other as possible).

Author	–300 to +100	+200 to +500
Homer	585	714
Hesiod	48	65
Demosthenes	29	94
Euripides	134	58
Thucydides	17	45
Menander	43	52
Plato	16	34
Isocrates	24	65
Callimachus	27	27
Aristophanes	3	43
Apollonius of Rhodes	7	29
Aeschines	6	29
Herodotus	8	25
Pindar	11	30
Xenophon	7	20

The correlation coefficient is still a very respectable 0.979 – that is, one can fairly confidently predict how many papyri a given canonical author might have in the late Imperial era/late antiquity, based on how many he had in the Hellenistic/early Imperial era. But some differences do spring up, and the scatter-plot (excluding Homer once again) is rather more interesting.

Clearly, there were some changes of taste: Aristophanes emerged to rival Menander as the chief comic author (eventually, of course, Aristophanes alone would remain to survive through the manuscript transmission). On the whole, rhetoric became somewhat more prominent, supplanting to some extent tragedy (more on this below).

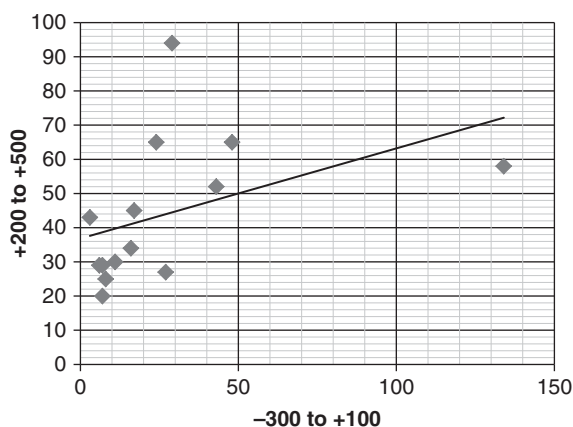


Figure 1.2

There are some real differences, then, and it is always necessary to qualify statements about Egyptian literary papyri by reference to their eras. Indeed, the effect becomes much more obvious once we isolate papyri dated to –300 to –100. We noted above Oldfather’s observation concerning the absence of Demosthenes from this group. Oldfather was rash, in my opinion, in using such numbers to make fine-grained claims concerning individuals; but our overall figures are now considerably higher, making subsets meaningful, and it has now certainly become valid to compare entire genres. In the following table (produced in 2011) I took the two top tiers in the table on pages 15–16 above and clustered the authors according to the coarse-grained generic definitions used there, ignoring “*varia*” and “*med.*”. I provide the percentage within the original group, so that, for instance, by dividing the 2,160 non-Ptolemaic epic papyri by the 6,628 non-Ptolemaic papyri total, I derive 33 percent.

	(Total minus Ptolemaic)	Ptolemaic
Epic	33%	13%
Rhetoric	5%	1%
Tragedy	3%	8%
Comedy	3%	1%
History	3%	1%
Philosophy	2%	1%
Lyric	2%	1%

Viewed like this, the contrast is quite sharp. This is seen first at the level of total domination by the canon. Top authors in the top six genres account

for 51 percent of all post-Ptolemaic literary papyri (these also include many paraliterary papyri, so the fraction among strictly literary papyri is in fact larger). They account for just 26 percent of the Ptolemaic literary papyri – half the fraction. Homer leads the difference but does not account for it entirely. One genre alone forms an exception: tragedy, for which the canon is considerably more frequent among the Ptolemaic papyri. There are 30 Ptolemaic papyri of Euripides alone. The numbers suggest that the rate of penetration by some plays by Euripides could have been, in the Ptolemaic era, not far behind that of the *Iliad* itself.<sup>74</sup>

We need a close-up picture. I have constructed a random sample of 48 papyri dated to between –300 and –100, and another one of 48 papyri dated to between +100 and +200.<sup>75</sup> Here are the results.

–300 to –100		+100 to +200	
Homer		Homer	
<i>Iliad</i>	3	<i>Iliad</i>	11
<i>Odyssey</i>	2	<i>Odyssey</i>	1
Homerica	2	Homerica	2
Drama		Drama	
Euripides	3	Euripides	1
Other known	1	Other known	1
Adespota	5	Adespota	1
Literary prose		Literary prose	
Known authors	1	Known authors	10
Adespota	5	Adespota	1
Other poetry		Other poetry	
Known authors	6	Known authors	5
Adespota	6	Adespota	5
Other		Other	
Technical	7	Technical	5
Schooltexts	3	Schooltexts	4
Unidentified	4	Unidentified	1

<sup>74</sup> A rough estimate: for a typical tragedy by Euripides (a little over 10,000 words) to have the same level of saturation as the *Iliad* (115,000 words), it will have to have 1/11 as many fragments as the *Iliad*: so the 55 Ptolemaic fragments of the *Iliad* correspond to five fragments of a Euripidean tragedy with the same incidence. Among the Ptolemaic papyri of Euripides, Orestes actually surpasses that number and has six fragments. Clearly, this, standing alone, signifies nothing, but it is worth noting that seven more plays have two to three fragments. This might well be considered the “normal” level for Ptolemaic Euripides – that is, many of his more popular plays had about half the incidence of the *Iliad*.

<sup>75</sup> CEDOPAL (in its 2011 interface) opened 48 screens of papyri from –300 to –100, one per each ten papyri, and I took the first from each; for the second century CE I skipped to each seventh screen and then added two more by picking the fifth fragment from each of the 16th and the 32nd screens.

The broad picture is clear enough: Ptolemaic papyri have fewer *Iliad* and known prose authors; they compensate by having more, obviously, of everything else, notably drama but also prose adespota.

First of all, we should qualify the contrast. There are important continuities: in particular, the broad order *within* genres seems to be stable. Homer dominates epic, Euripides dominates tragedy, Menander dominates comedy (he has seven Ptolemaic fragments), Plato dominates philosophy (six fragments). Beyond that, the Ptolemaic numbers are too small to make such claims, but it is significant that the famous authors are often represented on the Ptolemaic papyri: Hesiod (5), Sophocles (4), Isocrates, Callimachus, Aeschylus, Archilochus (3 each), Thucydides, Sappho (2 each), Herodotus, Xenophon, Hippocrates, Aratus, Lysias, Euphorion and Stesichorus (1 each). Missing from the top tier are Demosthenes, Aristophanes, Apollonius, Aeschines and Pindar.<sup>76</sup> Of these, only the absence of Demosthenes is genuinely surprising (the absolute numbers for the other missing authors are quite small) – and has been remarked upon already by Oldfather. Thus, the evidence does not suggest a reworking of the levels of canonicity within genres between the Ptolemaic and Roman eras.

What does the evidence suggest?

Once again, it is indeed reasonable to suppose that drama as a whole was more popular in the Ptolemaic era, oratory as a whole less so. It is worth mentioning that we have six to eight Ptolemaic papyrus fragments containing musical notation for classical tragedy, and no more than six Roman-era papyri containing drama with musical notation, of which at least some may contain post-classical drama: since Ptolemaic papyri are less frequent by about an order of magnitude, this implies a very significant drop in the frequency of musically annotated drama.<sup>77</sup> The more general point is that not a single Roman-era papyrus with musical notation is identified as containing classical compositions – this, even though literary papyri of the Roman era as a whole are dominated by classical works. The natural interpretation is that there was some continuous tradition of full-fledged

<sup>76</sup> Of the second tier, missing are Alcaeus, Theocritus, Alcman, Aesop, Bacchylides, Aristotle and of course Astrampsychus and Plutarch: so there are five missing out of 13 that could have been represented. Since authors in this tier have on average fewer than 16 fragments, and the Ptolemaic papyri are about 1/15th of the total, Ptolemaic representation of five out of 13 is, essentially, chance level.

<sup>77</sup> Ptolemaic music papyri with drama are: DAGM 3, 4, 5–6, 8, 9–14 (perhaps three fragments: 9–10, 11, 12–14), 15–16; Roman era: DAGM 38, 39–40, 42–43, 45, 49, 53–54 (I ignore DAGM 56, which clearly is not a notated music text but, rather, a study in composition, perhaps a rare document of music education).

performance of ancient drama, music and all, through the Hellenistic period, but that it did not last into the Roman era.<sup>78</sup> Thus, the relative decline of drama may be related to the relative decline of its performative presence – a presence which was replaced, to some extent, by the rise of oratory. We note that the power of genres is related to their perceived performativity. This would serve as a first approximation; we will return to this issue many times in this book.

But this is not the entire story: independently of the ranking of genres, there is also the less “elite” status of Roman-era papyri, visible above all in the sheer presence for the *Iliad*. Was there a dumbing down? Did people stop reading more sophisticated and rare works? I doubt that. An alternative account might perhaps have been that Roman-era papyri were more heavily dominated by the educational context. This is tempting but probably wrong: as I will note below, I do not think that the sheer size of the educational context is enough to make such an impact, and, as a simple empirical matter, the obvious schooltexts are not at all rare in the Ptolemaic context.<sup>79</sup> The next option is to bring in our ideal-type division into big and small libraries. Then the hypothesis would be that the Roman-era material is more heavily populated by the ideal-type small library. This is plausible: Greek acculturation of Egypt, together with the general competition for the status of *paideia* in the Roman era (more on this in [Chapter 6](#), section 6.3), would mean that more people owned books. The more libraries there are, the less the entire landscape of books is dominated by the few big libraries. All those Roman-era *Iliads*, then, represent not *dumbing down* but *trickle-down*.

Speculative as it is, this argument is in some sense forced on us because of the obvious saturation of the population by *Iliads*. If we assume that the relative frequencies of big and small libraries were the same in the Ptolemaic and in the Roman eras, then we would either

<sup>78</sup> See T. J. Fleming (1999) for the (minority) position that ancient music was transmitted by notation. He seems to ignore the very likely possibility that musical notation was an internal technical device shared by professional musicians that did not have the status appropriate to bookrolls (I return to this on pp. 676–7 below). That musical traditions survive mostly without the use of writing is obvious (and is the key claim of the monumental Taruskin, 2010); we should envisage long generations during which musical traditions survived orally: even though it was written down on occasion, writing itself would not be the main medium of continuity. But this oral tradition, then, could be subject to gradual erosion. Through whatever mechanism, it is clear that dramatic traditions were carried over to the Imperial era mostly through mime rather than full-fledged productions of ancient drama (see pp. 498–9 below).

<sup>79</sup> Cribiore (1996: 175–284) has 412 school exercises, 33 of which, by my count, are from the third and second centuries BCE: so the Ptolemaic-era material has an (insignificantly) *higher* ratio of school exercises.



have to believe that many big libraries did not possess the *Iliad* in the Ptolemaic era or, conversely, that in the Roman era it became customary for big libraries to possess the *Iliad* many times over (the default Bar Mitzvah gift, as it were). I am sure there was some over-saturation of libraries with the *Iliad*,<sup>80</sup> but this cannot be the pervasive account distinguishing the Ptolemaic era from the Roman. So, if we assume that essentially all big libraries already had the *Iliad* in the Ptolemaic era, and that hypersaturation by the *Iliad* was not much more common in the Roman era, the only option left is that big libraries became less frequent. And so, as book owning becomes more widespread, it changes its overall character.<sup>81</sup>

The fundamental point is that we can accommodate the evidence we have for Ptolemaic literary papyri without the assumption of a rupture in the canon taking place at around –100 BCE. We do note a change (less drama, more rhetoric), representing, I would argue, a different ranking of the genres in terms of their perceived performativity; and we do note another change (fewer adespota, more *Iliad*), representing, I would argue, a rise in the relative number of small libraries. But the main lesson is that of stability.

I looked in detail at the contrast between the Ptolemaic- and Roman-era papyri, which is indeed the most significant case of papyri displaying any heterogeneity. And yet: in the year 250 BCE, as in 350 CE, one could pick books at random in any Egyptian city and find, to a large extent, the same authors. What is surprising is not that some details change but that, through all those centuries, so little does. There is little surprise in the spatial homogeneity of the papyri; why should we expect, after all, Oxyrhynchus to possess a very distinctive literary culture? The temporal homogeneity is startling, however. Such is the stability of the canon. We set out to look for discrepancies in our evidence, simply so as to test its reliability. But we have come up with an unexpected, positive result: it appears as if the canon was subject to no more than minor variations through the centuries.

<sup>80</sup> There are in fact parallels to this in the collection of Epicurus in Herculaneum, where in particular Epicurus' central work, *On Nature*, was present in multiple copies (some books are attested two or three times: for a brief summary, see Gigante, 1995 [1990]: 18; given the fragmentary nature of the survival of the villa, this suggests perhaps ten to 20 copies held originally at the same library, at least of some of the books! But this is of course the central canonical work of Epicureanism, in a professional Epicurean library. This is the equivalent of grammarians – who certainly would have multiple copies of their Homer.).

<sup>81</sup> For a similar argument – with better evidence to support it, in Victorian British circulating libraries – see Moretti (1999: 147).

### 1.2.4 Education and Scholarship, Curation and Discard

One of the most striking features of the papyrological evidence is the role of papyri from the educational context. Cribiore (1996), the most systematic study in the field, catalogues 412 papyri related to the study of basic literacy alone (a simple extrapolation suggests that a similar study today would have closer to 500 documents). As I note below, many other documents no doubt belong to the context of education – e.g. mathematical exercises, anthologies, etc. How far does that skew our evidence? In some sense, not substantially. The following table provides the number of writing exercises taken from tier 1 authors (and counted in all the tables above!).

Homer	129
Menander	29
Euripides	25
Isocrates	14
Demosthenes	7
Hesiod	4
Herodotus	2
Callimachus	2
Aristophanes	1
Apollonius	1
Aeschines	1
Pindar	1
Xenophon	1

The Isocratean writing exercises derive entirely from his exhortations, and this is the only case in the top tier where writing exercises represent a very significant fraction of a work's survival (in this case, about half: Aesop's ratio is even higher, though his selections for the classroom are of a different kind). About a quarter of the *identified* Menander fragments (an important qualification), as well as a sixth of the identified Euripides fragments, are writing exercises (both authors had easily extractable gnomonic passages) – as are less than 10 percent of the Homer fragments.

And yet, the overall correlation is striking. The overall evidence of papyri largely predicts the use of papyri for writing exercises, but *more so*. The writing exercises are hyper-canonical. But, then again, is this not perhaps suggestive for other literary papyri? Maybe a professional-looking copy of the *Iliad* could have served as a tool for the teaching of basic literacy – just as a professional-looking copy of Demosthenes could have served as a tool for the teaching of rhetoric. Cribiore (2001: chap. 8, 201–4) returns to this problem and keeps noting the same difficulty: at the

level of education in which mature reading of the canon was to be expected (with the possible exception of mere anthologies, or of the *Iliad* and of Isocrates' exhortations), would not "normal" texts be used instead of the obvious schooltexts of the level surveyed in Criore (1996)? Thus Criore ends up using the frequency of literary-looking papyri as evidence for the papyri used in the classroom. Undoubtedly this is sound; but what does that mean for the overall origins of papyri as a whole, in literary collections as against the use in schools? So many papyri were "merely" educational; perhaps this is where they generally came from?

And yet this impression is, I would argue, deceptive. It arises from the extremely high frequency of writing exercises within the literary papyri, which, at first glance, seems to suggest that the consumption of literature was dominated by the classroom. You graduated, and then put away childish things such as reading and writing – lifelong readers being the exception rather than the rule.

But this is obviously an illusion. The frequency of educational papyri in our evidence is clearly exaggerated because of their discard-to-curation ratio.<sup>82</sup> It would not be at all extraordinary for a literary roll to have remained in circulation for a century or two.<sup>83</sup> Would a writing

<sup>82</sup> For the general questions of discard and curation, studied by archaeologists under the heading "formation processes of the archaeological record", see, e.g., Schiffer (1996). As Lamotta and Schiffer (1999: 19) put it: "[E]arly studies tended to assume that variability in house floor assemblages—i.e. differences and similarities in the kinds and quantities of artefacts—could be attributed to differences in the activities carried out in those structures. Since the mid-1970s, however, there has been a concerted effort to identify additional sources of variability contributing to house floor assemblages, principally the formation processes of the archaeological record—both cultural and noncultural."

<sup>83</sup> Houston (2009: 250–1). Perhaps rolls could be kept for up to five centuries (!) – a fantastic number, but well within the experience of the medieval curation of manuscripts. In fact, the loss rate for medieval manuscripts is estimated by Buringh (2011: 227) at about 25 percent per century, implying a half-life closer to two centuries. (Parchement manuscripts are arguably made of a more durable material than papyrus, but the same cannot be said for paper. And yet – paper manuscripts from the high Middle Ages are commonplace: see Bozzolo and Ornato, 1980. The Ravenna papyri – for which, see Tjäder, 1955 and 1982 – have been kept in continuous curation for up to 1,500 years!). Lewis (1974: 60–1) sums up the evidence simply as "hundreds of years" for the longevity of a papyrus book, though our sources mostly relate to especially valued documents. I have used the LDAB data to produce a very crude average age for the papyri in Herculaneum, simply taking each century as its middle point (thus, assigning all "first-century BC" rolls to the year 50 BC). The average roll turns out to have been produced at 59 BC, so it was 128 years old when it became carbonated by the volcano (the equivalent of a contemporary library whose books were printed, on average, when Bismarck retired from office). But for how long would the rolls be curated even further, absent the eruption? To clarify: that this was an elite, well-curated library should not necessarily mean a longer curation; maybe rich collections are those that can more easily commission replacements for deteriorating rolls? I will return to such considerations below. The one major difficulty with such exercises – making them produce more of an upper bound – is that we do not know how many rolls the library *had already lost*. At any rate, the Herculaneum evidence definitely shows that, when the will is there, rolls could very definitely be preserved in substantial numbers for one to two centuries or more.

exercise remain “in circulation” for even ten to 20 years? While many dozens of Cribiore’s exercises on papyrus are written on the back of documents – or on the back of other exercises – only one or two of these exercises have a document written on their *own* back, the exceptions being number 185, and perhaps 250 (but, even then, it is quite possible that the fragmentary account on 185 was made by the schoolmaster himself: so, not a secondary use of a piece of paper left lying around but, rather, two documentary engagements by the same individual). The impression, then, is that school exercises simply did not lie around so as to be reused. A piece of papyrus was valuable to the classroom in that it contained space on which exercises could still be entered, but once it was covered by exercises it lost its value. It is not at all outlandish to suggest, then, that the typical curation period of a school exercise would be no more than ten to 20 years, or an order of magnitude less than that of a literary roll; quite likely, less. If so, Cribiore’s 412 writing exercises would represent not 7 percent of the total literary papyri in circulation at any given moment but 0.7 percent, or quite likely less.<sup>84</sup> All in all, perhaps a low percentage of the total written documents in circulation at any given moment could be concentrated in the school, probably rather less.

Stephens, 1994: 411, points out the relative frequency of the first books of the *Iliad* as evidence that “large numbers of copies of books 1 and 2 owe their existence to their use as school texts”. This in fact is an important observation, which ought to be generalized and qualified for its wider significance. The following table measures the incidence of “first books” among the relatively frequent, multi-roll works.

<sup>84</sup> The evidence is even more skewed towards educational papyri, in that many of them are not papyri, strictly speaking, at all, but ostraka. The survival rate of ostraka must be significantly higher than that of papyrus, so that, if a low percentage of our extant “papyri” are educational ostraka, we must assume that such artifacts constituted a vanishingly small fraction of the pieces of writing in circulation at a given moment (surely less than one-tenth of a percent). On the other hand, a substantial amount of writing for educational purposes would have to be produced on wax tablets, a type of artifact that barely survives at all; there were thousands of these in the Egyptian chora, inscribed and reinscribed daily: the bulk of all ancient ephemeral writing – which remained, indeed, ephemeral and lost from sight. (For a famous case, outside Egypt, of a wax tablet retrieved with all its multiplicity of writing, see Zalizniak on the Novgorod Codex: [www.csad.ox.ac.uk/CSAD/newsletters/newsletterto/Newslettertod.html](http://www.csad.ox.ac.uk/CSAD/newsletters/newsletterto/Newslettertod.html).)

	Total	First book	Survival factor for first book <sup>85</sup>
Homer's <i>Iliad</i>	1,421	201	3.8
Homer's <i>Iliad</i>	Second book:	150	2.8
Homer's <i>Iliad</i>	Third book:	92	1.6
Homer's <i>Odyssey</i>	252	18	1.8
Thucydides	97	23	2.2
Apollonius	56	25	2.4
Herodotus	47	20	5.2
Callimachus' <i>Aetia</i>	33	13	2.0

The effect is real and consistent. Still, it is not necessarily *just* a schooltext effect (though to some degree, of course, it is, as can be verified for Homer: many of the exercises are indeed from the first books: Cribiore, 1996: 194). Another part of the effect must involve the influence of the small library. We may note that the top tiers of the table on pages 20–4 above are dominated by short works: a single play, a single speech, a brief epic work – Homer himself forming the main exception. If so, it is tempting to believe that some smaller libraries could have opted to hold a single roll from larger works; perhaps this was, indeed, most frequent with Herodotus: too famous to ignore, too bulky to collect.

Yet a third account should be mentioned as well. I introduce it with a completely separate piece of evidence: the frequency of Ptolemy's *Handy Tables*. As noted in the table on page 23 above, the six fragments found in 2011 (for a work occupying probably three rolls) are fairly impressive for a second-century CE work. If we take them as the equivalent of, say, 12 fragments for 30,000 words of prose, we find a frequency comparable to that of, say, Sappho or Plato. Yet another fragment (of the introduction to the *Handy Tables*) was published in 2014 (Acerbi and Del Corso, 2014): so, seven fragments, of a single second-century CE work! The *Handy Tables* present no interest to any reader other than the sophisticated astrologer, and it does seem likely that antiquity had fewer sophisticated astrologers than it had readers of the *Republic*.<sup>86</sup> This merely illustrates the wider

<sup>85</sup> In this column, I calculate the average number of fragments predicted, by the total (column 1), for an arbitrary book; and divide it by the actual number (column 2) found for a given book. I treat all books as of equal length, a simplification which cannot be verified for Callimachus and which is slightly, but not significantly, wrong for all the rest. Generally speaking, first books tend to be somewhat longer, hence my numbers are slightly exaggerated, perhaps by 10 percent or so. In my calculation, I compare the number of first-book fragments to the average number of non-first-book fragments.

<sup>86</sup> The point seems to me fairly evident but I return to discuss the number of copies of Plato on pp. 118–21 below. Roughly put, sophisticated astrologers – those who owned Ptolemy's tables – served the elite – who owned Plato. And there were surely, on average, more craftsmen than clients in the sophisticated astrology business!

problem of the astrological (or, very rarely, astronomical) papyri, of which we have 245 fragments. This is to some extent because we are especially lucky in the editor of those papyri – Alexander Jones, who scoured the Oxyrhynchus collection for its astrological contents (Jones, 1999). Even so, Jones is responsible for only 168 out of the 245 fragments. The basic fact, then, is that astrological papyri, taken as a whole, are more frequent than those of any author other than Homer himself. This surely is not an artifact of the schoolroom, neither is it entirely (as was the case with writing exercises) a consequence of there being little incentive to curate the artifacts in question for a long period. Certainly, some astrological papyri are literally “ephemerids”, and so to some extent ephemeral – tabulating predicted observations for a certain chronological range and thus losing much of their value as their window of accuracy expires. Others are individual horoscopes and are perhaps comparable to documents, certainly not to collectible literary papyri. But many astrological papyri have lasting content, of which the *Handy Tables* form one example. Procedure texts are always valid; epoch tables can be valid for very long periods. We have at least 60 such long-lasting papyri in Jones’ collection alone. These are not merely long-term documents; they are extremely useful long-term documents, always of value to any practicing astrologer. Such documents, we should expect, could be curated indefinitely. And yet the sheer numbers among surviving documents are extremely high.

In short, the seven fragments of the *Handy Tables* are not a fluke: it appears that long-lasting astrological tables are surprisingly over-represented in the papyrus evidence, even though there would be clear incentives to curate them for as long as one curated any literary text, so that the explanation through quick discard cannot apply in an obvious way.

But perhaps quick discard needs to be assumed, for a contrasting reason: useful astrological tables would have to be discarded frequently just *because* they were so useful. The use of astrological tables entails the continuous rolling, unrolling and thumbing of the papyrus, and it stands to reason that such repeated use would have to shorten the document’s life and so inflate the frequency of the document in the papyrus evidence.<sup>87</sup> The *Handy*

<sup>87</sup> I briefly entertained the idea of considering this question in terms of the material properties of the extant fragments – are the manuscripts that I predict to be the more thumbed in fact the more tattered? – but I quickly despaired of this route. Astrampsychus’ P.Oxy. 47.3330 is indeed, to my untrained eye, fairly decrepit. But not more so than, say, P.Oxy. 76.5107, from Plato’s *Statesman* – a work of the big library lovingly to be curated. The papyri in our possession all share the trauma of discard, all were deliberately shredded and cast out: it is perhaps impossible to tell now how they might have appeared, just prior to discard, in their full form. I simply have to assume, then, that books subject to more wear and tear would have deteriorated more rapidly.

*Tables* were *handy*. And, once a copy of Ptolemy's *Handy Tables* had deteriorated through heavy use, its owner would have commissioned a new copy.

This effect must be seen in other parts of the papyrological evidence as well. The case of Astrampsychus is directly comparable. Having ten fragments for a work of perhaps 300 CE<sup>88</sup> – equivalent to roughly 40 fragments of a classical work – and of the size of roughly a single roll implies a penetration rate comparable to that of Hesiod. Surely those ten fragments were well thumbed by late ancient readers anxious to discover their fate, in the process ruining their rolls. Another example: we have 26 to 28 fragments of musical notation from antiquity. Historians of music routinely lament this small number but historians of the book should be struck to find it so large. Music notation was a rare professional skill, apparently the outcome of ad hoc compilation by isolated individuals rather than the recopying of standard notated texts.<sup>89</sup> If so, 26 to 28 fragments would suggest a fantastic frequency. But, once again, notated papyri would be more heavily used and for this reason more frequently replaced.

This must also be part of the explanation for the first book effect. After all, there were not *that* many teachers in antiquity, certainly not enough to produce three times more copies of Book I of the *Iliad* than one would find in all other libraries put together. No: schoolmasters stood out not in that they had more copies of *Iliad* I but in that they constantly opened and reopened them. So, perhaps the entry into the canon is over-represented, in the evidence of the papyri, through sheer attrition? The most often read, and so the most quickly damaged?

The wider point of the discard effect is its converse: works which suffered less attrition would have been kept longer and so would have been more visible in the actual circulation of papyrus. It is clear that the best-curated and longest-maintained papyrus would have been that of the literary roll. Documents could sometimes be kept for long periods, for legal reasons, but many were ephemera and are not known to have been preserved for more than several decades.<sup>90</sup> It would not be too far off to

<sup>88</sup> So, Browne (1976). <sup>89</sup> West (1992: 270 ff.).

<sup>90</sup> The Dioscorus archive was maintained for some 70 years and may be among the longest-lasting (on this archive, see p. 190 below); that of the strategos Apollonius, another major collection (see Kortus, 1999), lasted for a similar period. The largest archive of all – that of Zenon (see p. 35, n.72, above), was maintained for only about 30 years. (The assumption is that the latest deposit into an archive is not far removed from the end of the active maintenance of the archive.)

suggest that the average curation of a document would be not much more than a third the length of that of a literary roll. If so, we find that, in the Roman era at least, the amount of papyrus in circulation used for documents was not much more than that used for literary rolls.<sup>91</sup> When we first think of papyri, we tend to think of the ancient bookroll; a closer acquaintance with papyrology soon convinces us that this impression is wrong and that papyrus in antiquity was essentially a bureaucratic and economic tool. But this, too, is a false impression, created by the more frequent discard of documents. The ancients themselves were familiar not with the papyrus which we now know – the one which was cast out or hidden away. They knew the papyrus above ground. And so, writing must have presented itself, to them, as it still does today: as the vehicle, above all, of literature – or, more precisely, of the canon.

Be that as it may: we have noted that the papyri of elementary education did not differ substantially from those of the canon. They were, indeed, hyper-canonical, emphasizing, in a non-linear relation, the very top of the canon, with a special emphasis on poetry.

An exactly complementary result can be found for sophisticated scholarship. The evidence, in this case, derives from annotations. These are genuinely very hard to classify, deriving as they do from all manner of literary culture: some, basic glosses used for the intermediate level of teaching of literacy; others, scholarly texts. McNamee (2007) cautiously avoids any strict classification, and notes how the more obviously elementary glosses correlate well with the evidence for basic literate education (56–8). Yet it is clear that the evidence of annotated papyri as a whole belongs most typically to a scholarly, elite context. The sheer numbers based on the table in McNamee (2007: 514–29) (ignoring Latin and adespota, which are not numerous, however) are listed below. I note the percentages of the total papyri that are annotated (which is the relevant measure of the tendency of an author to become annotated: absolute fragment counts are very misleading in this regard). I avoid this measure for authors of unique annotated fragments, which, as usual, are nearly meaningless from a statistical point of view.

<sup>91</sup> I suggest the hypothetical ratio 1:3 because it is the one adopted in Habermann (1998: 157, tab. 11), where documentary and literary papyri are presented side by side, the vertical axis for literary papyri scaled at one-third that of documentary papyri. The two graphs are then made roughly to coincide. This surely is a substantial undercount of documents, however (whose rate of publication is considerably lower than that of literary rolls).



*Annotated percentage of total papyri per author*


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Homer	26	1%
Aristophanes	17	30%
Alcaeus	14	50%
Pindar	14	25%
Menander	13	11%
Euripides	12	7%
Callimachus	11	13%
Plato	10	11%
Aeschylus	8	25%
Sophocles	8	22%
Thucydides	7	7%
Demosthenes	6	3%
Theocritus	6	25%
Aratus	5	36%
Bacchylides	5	44%
Alcman	4	27%
Apollonius	4	8%
Euphorion	4	40%
Hesiod	4	3%
Simonides	4	67%
Stesichorus	4	44%
Anacreon	3	60%
Archilochus	3	17%
Epicharmus	3	43%
Sappho	3	13%
Xenophon	3	7%
Herodotus	2	4%
Hippocrates	2	8%
Hipponax	2	40%
Isocrates	2	2%
Lycophron	2	33%
Parthenius	2	100%
Antiochus	1	
Aristoxenus	1	
Cercidas	1	
Corinna	1	
Cratinus	1	
Critias	1	
Eratosthenes	1	
Herodas	1	
Hierocles	1	
Ibycus	1	
Nicander	1	
Theognis	1	

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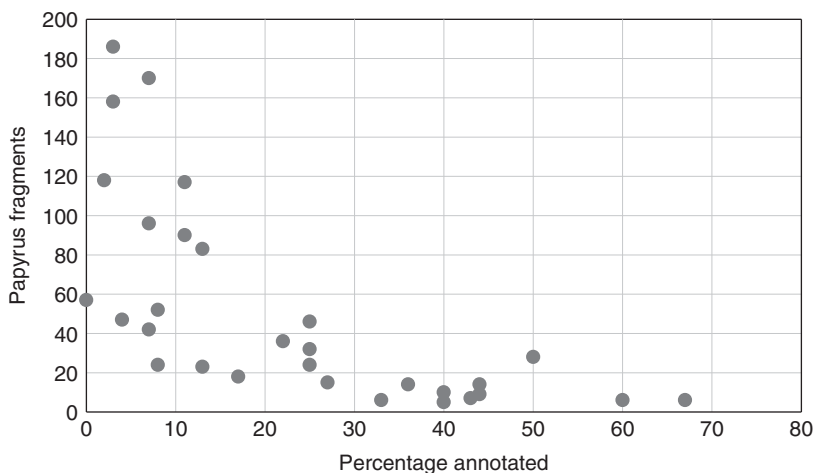


Figure 1.3

Once again the practice involves primarily poetry, and in this it superficially resembles elementary education. Just which poetry, however? The following table takes the results for poetry alone (ignoring, for better resolution, the two extreme cases of Homer and Parthenius),<sup>92</sup> showing a striking correlation: the less widely a poet was circulated, the more likely that he or she would be annotated.

As explained in note 92, this is not a mere effect of size as such. Rather, it shows that annotation was not attached to a fixed fraction of works, instead attaching to particular *types* of work. And, indeed, our result generalizes a point made more narrowly by Perrone (2009), regarding commentary to comic fragments: annotation peaks with regard to minor authors.

Does this mean, however, that scholarly readers would disdain the central canon, picking instead an alternative canon of minor poets? But this is wrong as well: as McNamee points out (2007: 127), not only are there many annotated copies of the most central canonical poets, but those copies also sometimes contain the most sophisticated annotation found anywhere. It is not as if Homer contained trivial glosses and Alcaeus sophisticated scholarship; to the contrary. Thus, what we see is that,

<sup>92</sup> There is an obvious difficulty with this comparison, in that an author who survives in very small numbers, and is annotated at all, would have to have a fairly high percentage of annotated fragments. To circumvent this problem, I ignore the single-annotated-fragment authors. The remaining authors all have at least five fragments overall (typically, rather more) and the typical rate of annotation is in the range of about 10 percent; hence this threshold effect is largely avoided.

whereas, in the circulation of papyri as a whole, there were many more copies of the central canon than of the rest, in the sphere of annotated texts the curve was much gentler.

This is predictable, as the leveling effect is a feature of big libraries. There were, say, ten times more libraries containing Hesiod than those containing Sappho. But, within those libraries that did contain Sappho, the sheer number of Hesiod rolls was not any larger than the sheer number of Sappho rolls: hence we find four annotated Hesiods and three annotated Sapphos. The *Iliad* was much more widespread than the *Odyssey*. But annotated texts were typical to the kind of library that had both, and so it is not surprising to find 15 annotated texts of the *Iliad*, and 11 of the *Odyssey*. And so the evidence is suggestive, once again: the big library contained the small library as a subset (this, indeed, is the fundamental sense in which prestige and popularity, in antiquity, went hand in hand). The cutoff point was different, with important consequences for how the literary field would have been conceived from the perspective of the small, or of the big, library. But both dealt with the same literary field, similarly ranked.

Driscoll (2016) is a study of the use of Homer, especially, within the culture of what I call here “the big library”. He goes through many close readings as well as statistical observations concerning the sympotic authors of the Imperial era, namely Plutarch, Aulus Gellius and Athenaeus, who, thanks to Johnson (2010), we have come to interpret as representations of the ideology of elite book culture in the Imperial era. To me, the most significant result comes in Driscoll’s appendix I, “Is the Use of Homer Distinctive?”. Driscoll puts side by side the uses Plutarch makes of Homer, lyric poets and Euripides. He goes through the manner in which citations are introduced and their function, concluding that (246), “in general, quotations of Homer fall into the same broad continuum of quotation as with Euripides and lyric”. The only significant difference found is not between Homer and the lyric poets (which is indeed a contrast between the small and the big libraries) but between Homer and *Euripides* (citations from the latter, more than those of other authors, tend to be taken out of context and “flattened” into a mere background, a kind of verbal wallpaper ornamenting the conversation).<sup>93</sup> So this, once again, is continuous with

<sup>93</sup> It seems that this is indeed a contrast between Euripides and the lyric poets: since he is so well known, he can be cited out of context. Homer, of course, could have been cited in the same way, as well, but this is less frequent in his case because he is, most often, the direct *theme* of conversations – as shown abundantly by Driscoll.

the evidence from the papyri as a whole and from the annotated papyri in particular: the big library and the small library, on a *continuum*.

We return to the homogeneity of the ancient canon, this time not in space or time but across the axis of literate education. This is, after all, the fundamental point observed by the historians of education: the very same works would have been repeatedly encountered throughout a pupil's career. And those works would have been chosen to some extent on the basis of their perceived value in moral education (hence Isocrates) but above all as a reflection of canonic status. The canon of education was formed on the basis of the general canon, concentrating on the most canonical poets (so: Homer, Hesiod, Menander, Euripides and some Pindar). Prose was more difficult, in being less memorable; but, even then, one took the most memorable piece of canonical prose – Isocrates' exhortations – and made it the basis of education in prose. A single text was taken from the margins of the canon (or perhaps was specific to the educational context), namely Aesop. With this single exception, ancient education relied on the set of authors it had available already: it had its very starting point in the canon. Ultimately, as one reached the big library, the entirety of the literary field would have been perceived, all the way down to tiers 3 or even 4. But it was the same field, throughout: the same, monolithic canon.

### 1.3 Out of Egypt

#### 1.3.1 *The Internal Evidence of the Papyri*

But are the papyri representative of anything other than the Nile Valley? I believe we have already come across an important piece of evidence for this question – in the very stability of the papyri. It is hard to imagine Oxyrhynchus maintaining its fixed literary culture while everything else changed about it – a calm in the eye of a Mediterranean literary storm. No: stability must have been forced on the Egyptian chora from the outside.

What is the empirical evidence for this *a priori* consideration? First, our evidence does not appear to be biased by local patriotism – or even by temporal patriotism. There is no preference for local or recent authors. To the contrary; one finds throughout a preference for a set of authors distant in space as well as time. This would make it inherently unlikely that the favorite authors were peculiar to Egypt.

The following table lists the pagan Greek authors who are usually assumed to have been at least related to Egypt, identified on Egyptian papyri. Within each locality, the authors are arranged chronologically.

<b>Alexandria</b>		
Euclid	6	–300?
Rhianus	4	–250
Heronidas	2	–250
Callimachus	83	–250
Apollonius	52	–250
Theocritus	24	–250
Lycophron	6	–250
Posidippus	3	–250
Philicus	1	–250
Aristophanes	1	–200
Eratosthenes	1	–200
Heraclides	1	–150 [Lembus]
Philo Judaeus	4	+0
Tryphon	2	+0
Areius	1	+0
Theon rhet.	1	+50
Heliodorus	1	+100 [Medicus]
Menelaus	1	+100
Soranus	1	+100
Achilles Tatius	6	+150
Ptolemy	6	+150
Pancrates	2	+150
Appianus	1	+150
Harpocration	1	+200
<b>Diospolis</b>		
Anubion	6	–50
<b>“Egypt”</b>		
“Nechepso”	1	–100?
Ps. Manetho	2	+150
<b>Panopolis</b>		
Triphiodorus	2	+300
Nonnus	1	+450
Pamprepius	1	+450

This list, with its 228 fragments, is entirely dominated by the Alexandrian literary culture of the early Ptolemaic period, some of whose members certainly became major figures of ancient culture as a whole. Callimachus, Apollonius and Theocritus are responsible for 159 of the fragments (Theocritus, of course, had only tenuous Alexandrian connections). Other than them, what we find are technical works – grammatical, medical and mathematical – for which Alexandria was certainly objectively central.

The prominence of Alexandrian poetry in the Egyptian papyri should not strike us as a local phenomenon. Perhaps the strongest evidence for this comes from the finding, among the papyri, of non-Alexandrian Hellenistic poetry. Aratus is an obvious example (the Hellenistic courts with which he is associated in our – untrustworthy – evidence are at Pella and Antioch, not Alexandria).<sup>94</sup> Otherwise, the most significant example is that of Euphorion. Here is a fairly important Hellenistic poet, though not at the level of the major poets – if importance is judged (as it must be) by influence on Roman poetry.<sup>95</sup> He was not active in Alexandria, however (hailing from Chalcis, with ties to Athens and to Antioch).<sup>96</sup> Would Egypt still collect him? It does, with a very respectable ten fragments: a fair measure of the importance of this author. A non-Alexandrian origin was not penalized by the papyri; as a correlate, I do not think we should assume there was a bias in favor of collecting Alexandrian poetry just because it was Alexandrian.

And, finally, even if we can prove conclusively the cross-Mediterranean canonicity of the Hellenistic poets only for the Roman era, then it is surely significant that their papyri are *not* specifically Ptolemaic: of the 159 fragments of the Alexandrian Hellenistic poets, no more than four are Ptolemaic-era. Indeed, the relative frequency of those poets is *smaller* in the Ptolemaic period. This result is expected and follows from the overall tendency of the lesser domination of the Ptolemaic papyri by the canon. And so, as a consequence, there are, relatively speaking, more Ptolemaic papyri of lesser Hellenistic poets (just as there are more Ptolemaic papyri, relatively speaking, of lesser authors as a whole) – Posidippus being just the most famous example.<sup>97</sup> This brings up a wider phenomenon: the papyri as a whole do *not* testify to any contemporary trends. Geographical proximity does not matter, but neither does chronological proximity. Here is another table, setting out all the papyrus fragments whose century of production as papyrus roll (as estimated by papyrologists) is the same as their century of composition as literary work (as judged by literary scholars).

<sup>94</sup> Aratus' itinerary is recounted in lively fashion by Green (1986: 148). It is known through the prism of literary biographical legend; the connection to Pella and the absence of any significant Alexandrian ties seem safe.

<sup>95</sup> Was Euphorion an influence on Gallus? Was this taken by the Romans themselves to be an emblematic example of Greek influence? See Hunter (2006: 24–6) (Hunter, as most scholars do, tends to see in Euphorion essentially an imitator of Callimachus).

<sup>96</sup> Dickie (1998: 52).

<sup>97</sup> I refer of course to the Milan Papyrus (see Gutzwiller, 2005), a nearly intact book produced in a matter of decades following the poet's death.

**Third–second centuries BCE, ten identified same-century literary papyri out of 482 total (21 per thousand)**

Callimachus ×2, Aratus, Cercidas, Chares, Dionysius Scytobrachion, Philicus, Phoenix, Posidippus, Sosylus, Meleager

**First century BCE to first century CE, five identified same-century literary papyri out of 1,717 total (three per thousand)**

Meleager, Dioscorides, Nicarchus II ×3

**Second–third centuries CE, 32 identified same-century literary papyri out of 3,940 total (eight per thousand)**

Achilles Tatius ×2, Antonius Diogenes ×2, Aelius Aristides ×2, Arrian, Chariton ×3, Dictys Cretensis ×3, Dionysius (Gigantias), Harpocration, Heraclides, Herodotus med., Hierocles, Lollian ×2, Menelaus, Pancrates ×2, Phlegon, Plutarch ×5, Ptolemy, Triphiodorus ×2

**Later antiquity, one identified same-century literary papyrus out of 1,538 total (below one per thousand)**

Themistius

I will take up in detail in the next section the question of adjustment for unidentified authors: to anticipate, these do not materially change the picture (so, for instance, papyri with unidentified Attic drama are certainly not contemporary!).<sup>98</sup> Further, the average author's productive period would be a fraction of a century, which more than cancels out the effect of unidentified papyri. Papyri distributed during the

<sup>98</sup> The major exception was pointed out in Cavallo (1996): quite a few papyri with ancient novels are extant from the first to second centuries CE, and most of these are likely to have been written at about the same time. To be more precise, however, there are 44 anonymous novels, likely to have been written in the first or second century CE, distributed as follows in terms of their century of papyrus production: six first century, 14.5 second century, 16.5 third century, six fourth century, 0.5 fifth century, 0.5 sixth century (we get "half" papyri when a papyrus is attributed to a range of two centuries). This should be measured against the total number of papyrus fragments from the century, however, so the actual incidence of anonymous novels is (numbers per thousand papyrus fragments): 6.7 first century, 5.3 second century, eight third century, eight fourth century, 0.8 fifth century, one sixth century. It is therefore not quite correct to say that the novel had its greatest distribution in the era of its composition, that of the high Empire. Rather, it is correct to note that it established its position fairly rapidly (though as a distinctly minor genre: about 1 percent of literary papyri, including papyri by known authors; one should note once again at this point that novels are fairly long). Then, at the end of the fourth century, it rapidly fell out of fashion.

author's own lifetime would have had, we find, a minuscule presence in the Nile Valley.<sup>99</sup>

There are hardly any exceptions to this emphasis on a single, dead, foreign canon.<sup>100</sup> One is formed by the group of Triphiodorus, Nonnus and Pamphrepius, with four fragments between them. As Cameron (1965: 470) puts it, "In the later Roman Empire Egypt, not for the first time in its history, became the home of Greek poetry."<sup>101</sup> As MacCoull (1988: 59–60) notes, it is striking that so much of the attested literary activity seems to come from just this region of Panopolis (situated well to the south of Oxyrhynchus): to the four fragments above one should definitely add *The Vision of Dorotheus*, an adespota Christian hexameter from the early fourth century CE,<sup>102</sup> and probably also the *Blemyomachia*, certainly yet another upper Egyptian and late ancient hexameter, found on an upper Egyptian papyrus.<sup>103</sup> It would not be shocking to discover that this poetry was more popular in Egypt than outside it. At the very least, it is noticeable that no late ancient non-Egyptian poets are represented in CEDOPAL. And the six fragments considered above are not all that trivial, if we consider that we are looking at very late authors – fourth and fifth centuries CE – who had a much more limited scope for being preserved. The six fragments of late ancient Egyptian poets are perhaps a meaningless fluke, but they could also be the equivalent of several dozen papyri from an earlier period.

We need bigger numbers to form a clearer picture of papyri in late antiquity. And so we should extend our vision to encompass Christian authors. Van Haelst (1976) had 52 well-located patristic texts (I ignore apocryphal writings). Of these, 28 are by fathers of the Church associated with Egypt (typically, of course, with Alexandria). Origen dominates this corpus, with 12 fragments, but there are ten authors in this group of Egyptian fathers of the Church preserved in papyrus and published by 1976.<sup>104</sup>

<sup>99</sup> That the numbers are somewhat higher in the Ptolemaic era is, once again, simply a function of the overall higher incidence of rare authors in that era. We find that small libraries are safe libraries, keeping just the established canon; and that big libraries are more open to experiment. (Stephens, 1994, raises the question as to which library the ancient novel belonged to. Her conclusion – in my terms, that it was a big library phenomenon – is the one more in line with the evidence we accumulate throughout this chapter.)

<sup>100</sup> I put aside discussion of one other exception – the *Acta Alexandrinorum*, surely a text circulating primarily in Egypt – until the discussion of adespota below. As will be noted, this appears to have been in some sense a sub-literary group of texts.

<sup>101</sup> Cameron (1965) <sup>102</sup> Kessels and van der Horst (1987).

<sup>103</sup> Livrea (1978) ascribes it to Olympiodorus from Thebes.

<sup>104</sup> I have to rely on Van Haelst here, because LDAB does not allow an easy interface with which to survey the detail of large groups of papyri. It is reassuring to note, for instance, that LDAB now has 27 fragments by Origen (the numbers are much bigger because LDAB also counts late ancient manuscripts with translations into Latin that survive through the manuscript tradition).



Athanasius	Alexandria	CE4	1
Clement	Alexandria	CE2	1
Cyril	Alexandria	CE5	3
Didymus the Blind	Alexandria	CE4	6
Isaiah	Scetis	CE5	1
Julius Africanus	Libya?/Jerusalem	CE3	1
Origen	Alexandria	CE3	12
Theonas	Alexandria	CE3	1
Theophilus	Alexandria	CE4	1

Once again, this may simply reflect Egypt's, and Alexandria's, role in the scholarly life of early Christianity (on which there is more in [Chapter 6](#), pages 777–8). Egyptian Christians did possess papyri of the works of such non-Egyptian authors as Irenaeus, Melito of Sardis and the Cappadocian fathers of the Church – though none, other than Melito, survived in huge numbers.

What to make of this? It is certainly true that, while Ptolemaic and Roman Egypt possessed authors from across the Greek-speaking Mediterranean, Egyptian authors formed no more than a fraction among them. But, then, Christian and Byzantine Egypt possessed a considerably larger fraction of Egyptian authors. Partly this could reflect a certain Byzantine fragmentation of Mediterranean culture.<sup>105</sup> We shall revisit this claim in [Part III](#). But, if so, the evidence becomes even clearer, by contrast, for the central centuries of the Hellenistic and Imperial eras. We begin to see evidence that the canon was not merely frozen in time but also homogeneous across the Mediterranean.

### 1.3.2 The TLG Evidence

From Ptolemaic times, until the Byzantine fragmentation, the selection of books found in the Egyptian countryside appears to have been Mediterranean rather than Egyptian. Spatial proximity to a given author did not matter. Indeed, it is even possible that this was *especially* true of places such as the Egyptian countryside. It would be rather incredible had the typical Athenian library in the Hellenistic era not included a rather larger fraction of Athenian philosophy; if the cities of the Islands and of Asia Minor did not display some preference, at least, for their native sons.<sup>106</sup> There ought to have been some

<sup>105</sup> While this is no more than an anecdote, it is worth mentioning that Van Haelst has one papyrus by Tatian of Mesopotamia (in Greek), and it is also the only papyrus he has from Dura Europos, a rare papyrus find from the Fertile Crescent – i.e. Tatian's own cultural area.

<sup>106</sup> We have some evidence for the local commemoration of cultural figures through monuments (Zanker, 1995: 161–6): Clazomenae minting a coin with Anaxagoras on it, Sicilian Himera doing

geographical variability there, because there were significant local literary traditions. The Nile was rich with tradition, just not a Greek one. That its Greek-speaking elites showed, in their collections of Greek works, so little interest in their own *Egyptian* heritage is shocking. You would think Herodotus Book *II* would be the most frequent. But in fact Herodotus, as we just saw, is the most heavily skewed towards Book I. He was cast aside just as his treatment was about to reach the Nile. No: the Egyptian countryside did not possess its own native *Greek* literary tradition (and, until the Byzantine era, it does not appear to have over-represented even Alexandria), and so it carried a bland, unmarked literary culture, one we may therefore use as our guide or baseline for other geographies, in locations with a more storied literary past.

In what follows, I compare the number of fragments of papyrus (counted in 2011) to the number of citations in ancient literature as a whole. The following table presents the number of TLG citations of a given author's name up to the fifth century CE, followed by the number of papyrus fragments, and then by the ratio of the first to the second; and then the same not with the numbers of citations but with the numbers of authors who make such citations. The TLG searches were run in 2011 on all authors with 12 fragments or more. They are ordered by TLG counts.

I hasten to explain: as classical scholars know all too well, references in antiquity were often implicit (through allusion or through citations of varying accuracy, unaccompanied by an explicit mention of their author's name).<sup>107</sup> This impression is correct though exaggerated. With some exceptions, it was generically inappropriate to cite historical names explicitly in verse (indeed, would the names even scan?), and also, with some exceptions, authors in theoretical-technical fields such

the same for Stesichorus; monuments were erected for Homer in the cities with which he was associated (and then in others as well), but, suggesting a clearer local tradition, there was one for Bias, in Priene, and another for Archilochus, in Paros. The last one is especially significant for the extensive inscriptions found there, dating from the Hellenistic era, containing detailed biographical anecdotes (Kontoleon, 1963): these suggest a continued dedication to Archilochus the imagined author. It is hard to believe that the city erecting such monuments to its dead poet would not also collect his papyri with greater zeal. Notice that this evidence relates primarily to archaic figures, "heroic" semi-founders of their cities; it should not be assumed that the same attitude would necessarily have extended to more recent, and more mundane, local authors. In general, for the question of local identities in a globalized Roman world, see the collection of essays Whitmarsh (2010) and references therein.

<sup>107</sup> See Stanley (1990) for citation practices in the Imperial era (when, indeed, they become somewhat more stable and modern-looking). It is telling that this study is produced from within the tradition of Christian *biblical* scholarship: classical scholars tend to be less interested in the nature of their texts, as canons, within antiquity itself.

as philosophy, medicine or mathematics often referred only sparingly to individual names (unless, that is, they were commentators, in which case they frequently cited names: the commentary verges on the “scholarly”). In those two cases, then, references by one author to another were often mediated and allusive. This leaves out a large body of literature, however, especially historical and scholarly, in which names were cited very frequently. As a consequence, the census of explicit mentions of names involves big numbers which appear meaningful enough. Indeed, concentrating on explicit mentions (and not indirect allusion) is precisely the relevant measure for our purposes. What we try to find is the extent to which certain names gained cultural currency. The hypothesis, then, is that this census can serve as a proxy for ancient reputations.

Author	TLG cites	Papyri	Cites/ papyri	TLG authors	Authors/ papyri
Aristotle	[4,180] 3,950	12	330	270	22.5
Hippocrates	[3,516] 3,400	24	140	118	4.9
Plato	[9,771] 9,350	90	105	311	3.5
Sophocles	[1,505] 1,400	36	40	158	4.4
Aratus	[988] 500	14	35	91	6.5
Aristophanes	[1,952] 1,600	57	30	140	2.5
Xenophon	[1,100] 1,050	42	25	132	3.1
Aeschylus	[791] 750	32	25	133	4.2
Demosthenes	[3,399] 3,300	186	20	162	0.9
Herodotus	[1,145] 1,000	47	20	174	3.7
Archilochus	[430] 400	18	20	100	5.6
Sappho	[402] 400	23	20	85	3.7
Euripides	[2,211] 2,200	170	15	226	1.3
Aeschines	[932] 800	50	15	96	1.8
Alcman	[280] 250	15	15	62	4.1
Hesiod	[1,369] 1,250	158	10	217	1.4
Thucydides	[1,158] 1,150	96	10	132	1.5
Menander	[1,058] 1,030	117	10	114	1
Pindar	[738] 650	57	10	146	2.6
Alcaeus	[296] 300	28	10	72	2.6
Homer	[5,733] 5,500	1815	5	332	0.2
Isocrates	[641] 600	118	5	103	0.9
Callimachus	[602] 500	83	5	127	1.5
Theocritus	[171] 150	24	5	50	2.1
Bacchylides	[99] 100	14	5	37	2.6
Apollonius	[1,369] 100	52	0	161 <sup>108</sup>	3.1

<sup>108</sup> The problem of multiple Apolloniuses is very significant in this case; this part of the table is nearly meaningless.

There's some work put into this table: it is not an unmediated count.<sup>109</sup> You will notice that the first column includes a number in square brackets; these are the raw numbers of a lemma search of the name up to the end of the fifth century CE. This is followed by another, estimated, "real" number, obtained as follows. First, quite obviously, we removed references that preceded the author as well as references from within the corpus of the author himself. Following that, we sampled the citation lists to estimate how many of the references are merely of homonyms, adjusting accordingly.<sup>110</sup> Finally, TLG counts give rise to some double-counting of fragments (so, if the name "Plato" is mentioned in a context in which, say, Athenaeus provides a fragment from Alexis, this will be counted by TLG twice as two separate cites of "Plato": by Alexis as well as by Athenaeus). This was estimated by counting the number of references from fragments where the author's name is cited and reducing a little under its half ("a little under", since occasionally the double-counting involves a later source which is not included in our survey). Such estimates are not precise, and so I round the result to the nearest multiple of 50; I then further simplify by rounding the ratio of cites to papyri to the nearest multiple of five.<sup>111</sup>

And as we do so we find quite significant results. First of all, many authors fall squarely into a fairly narrow range, between roughly 40 and 15 cites per papyrus fragment. These are the following: Sophocles, Aristophanes, Xenophon, Aeschylus, Demosthenes, Herodotus, Euripides and Aeschines (among the core Athenian canon), Aratus (among the Hellenistic authors) and Archilochus, Sappho and Alcman (among the archaic authors).

Why is Euripides, for instance, on the low side of this range? Because the simple division of cites by papyri is clearly misleading and a non-linear regression would do a better job. There is a certain ceiling, and, as citations approach it, their rate of growth slows down. Ancient literature just did not have room for, say, 5,000 explicit citations of Euripides. This accounts also, to some extent, for the Homer and Hesiod anomalies, and

<sup>109</sup> Much of the work has been done by my research assistant, Amy Carlow.

<sup>110</sup> The sample was typically "every 30th occurrence" but when the results were more difficult we went to "every 15th occurrence". This result is much more statistically robust than it appears, since the results are arranged by authors, and since references are to the author, or homonymous, in a manner highly correlated within the citation pattern of a single author: so if, for instance, Galen has 60 cites of the name, and all are homonymous, we will indeed pick it exactly twice.

<sup>111</sup> The same adjustments were not made on the number of authors citing, which is therefore generally an overcount.

is an important background to take into account when considering the Menander anomaly.<sup>112</sup>

The remaining anomalies are divided into two: authors who have surprisingly many citations, given their papyri; and those who have surprisingly few. Let us go through these in turn. Those authors with surprisingly many citations are Aristotle, Hippocrates and Plato. The reason for this is self-evident: citation by name is common in the particular genre of the commentary, which survives extensively for philosophy and science.<sup>113</sup> It should be pointed out, though, that the presence of philosophers is in fact much more impressive than that, when we consider the number of *citing authors* (which is much less sensitive to hyper-citation within commentaries): with 311 and 270 citing authors, respectively, Plato and Aristotle are outliers. They are unlike almost anyone else – but they are like Homer. (Hippocrates is not of the same order; indeed, his huge citation number is driven almost entirely by a single author, Galen.) Now, to be like Homer is a very rare accomplishment indeed, and we may begin to note that the reception of philosophy follows a separate route – in the very elite levels represented by the citation counts – from that of the papyri. At some elite level, philosophy could become not a genre within literature but the equivalent, or the alternative, to literature.

Another “scientific” author is Aratus, and this should serve to deflate his apparently robust cites-to-papyri ratio: it is in fact largely a function of mentions by Hipparchus’ so-called commentary. Without such scientific references, Aratus should in fact be included with the other Hellenistic authors, in the group of surprisingly low ratio of cites to papyri.

This group includes, then, the following authors: several archaic authors (Pindar, Alcaeus, Bacchylides); all the Hellenistic authors; Menander (perhaps best considered alongside the Hellenistic authors); and Thucydides and Isocrates.

There are several hypotheses for such low ratios of cites to papyri. The first one is that such authors were in fact specifically popular in the Nile Valley, and for this reason we find many more papyrus fragments of such authors than their overall reputation would lead us to expect. The second

<sup>112</sup> But the case of Menander is more difficult, as the number of papyri may be an undercount; see p. 86 below. Further, it also seems relevant that with dramatists, in particular, it is natural to attribute a citation to the speaker rather than to the author (this seems to be the implication of Driscoll, 2016: 237).

<sup>113</sup> For all three authors, there was an impressive publication burst between 2011 and 2018, raising their papyrus counts by 10 to 20 percent; this also slightly removes their anomaly.

one is that such authors have a lower disposition to have their name cited by later authors, relative to their circulation on papyrus.<sup>114</sup>

The case of Isocrates is the simplest in this regard: his papyrus count is inflated by the school use of the Cyprian orations. Thucydides is something of a surprise: on closer look, his case may reflect a version of the non-linear “ceiling” effect. All three historians have, in fact, very similar cite counts – just over 1,000 – which is apparently as much as a historian could get, regardless of his papyrus count.

The remaining anomalies are driven by eras. In general, archaic authors are not cited as often as classical authors (indeed, even those within the 40-to-15 range are on the lower side); Hellenistic authors are cited *much* less. The archaic effect cannot be due to the influence of the Nile: we certainly do not think that Bacchylides, Pindar and Alcaeus were, among all the regions of the Mediterranean, especially popular in the Egyptian chora. (Admittedly, they were more popular among the editors of Greek papyri – but not more popular than, say, Aeschylus.) On the other hand, it is clear why they would be cited less often than their Athenian counterparts. After all, a considerable fraction of our citations – by my estimate, about half – comes from the context of Atticism, in the form of lexica and anthologies focused on Athenian history and literature as well as on Attic usage. This must account in part for the low number of cites of the Hellenistic authors – though, in this case, the doubt returns: are these, after all, not over-represented on the Nile? Surely both forces operate: the cites-to-papyri ratio of Hellenistic authors is low due both to their low citability (because of their non-Athenian origin) and to their high incidence as Egyptian papyri (because of their at least quasi-Egyptian origin). But which force is the more important?

I set aside this question, and set aside the Hellenistic authors as a group. Otherwise, the result is powerful: the discrepancies that do arise between papyrus fragment and TLG counts are mild and explicable. This is quite significant. TLG citations were not made in the Egyptian countryside. The authors in the TLG corpus lived in the major centers of Greek Mediterranean culture, hailing from across the Mediterranean and active in such places as Athens, Asia Minor, Rome and Alexandria. In short, this is the culture of the richest, greatest metropolitan centers: and yet it is not very easy to tell it apart from Oxyrhynchus.

<sup>114</sup> It is also possible that the sheer numbers of papyri finds, or of cites, are for some reason an outlier (we have accidentally lost many authors who did cite the particular author; or we happen to have dug up, or simply published, a disproportionate amount of papyri for just this particular author).

This could be put somewhat differently. What the comparison between TLG citations and papyrus fragments brings out is just how *plausible* the distribution of papyrus fragments is. The papyrus fragments do not shock us by bringing in many authors in the wrong proportions; rather, they seem to capture quite well what we would have expected, based on the pattern of attestation in ancient literature (so that even Menander, the most spectacular case of wealth hidden in the papyri, was after all very well attested in advance: the surprise of his many fragments was in a sense predictable).

The results are plausible. What is implausible is that we get them. There is no obvious way in which TLG citations influence papyrus fragments, or vice versa. And, indeed, the correlation is not any direct cause and effect. Rather, TLG cites are a good enough proxy for ancient reputations, and, as I noted early on, it is a likely hypothesis that, in antiquity, reputation and circulation went hand in hand: the main reason to collect an author was if his or her reputation was high. This was not Bourdieu's modernism.

### 1.3.3 *The Evidence of the Portraits*

We need to find more ways to assess reputations: to study the pictures that the ancients formed of their own culture. So let us consider their pictures. These are harder to quantify, but I did compile a count based on Richter's (1965) survey of Greek portraits (somewhat expanded in Richter and Smith, 1984), considering just the portraits of "cultural icons".<sup>115</sup> I count only the reasonably safe reconstructions of portraits in marble.<sup>116</sup> (Other formats are less common and show more eccentric patterns of preservation; and it is better to compare like with like.)

<sup>115</sup> So that I ignore portraits of political and military figures. Richter's approach is positivistic and often bordering on the naïve. We may doubt the very meaning of a "portrait of . . ." – could a Roman copy of a Greek portrait (whatever that meant originally) not have been commissioned just as a generic Greek or a generic cultured person, or just as a nice piece of marble (see, for instance, Dillon, 2006)? Richter, in fact, in the detail of her argument, does pay attention to such nuance, and the pattern of distribution forces one to believe, after all, in the reality of the phenomenon, for, if these were just nice pieces of marble to look at, why should their distribution have responded to the cultural function of the subjects? For a sophisticated discussion, ultimately sympathetic to Richter's project (and engaging with the role of such portraits in canon formation!), see Wallis (2016). My study is based on an Oldfather-type resource: a somewhat antiquated survey. In this case, the rate of new discoveries is more muted (though not negligible: see, e.g., Fittschen, 1991), but, at any rate, this is the most recent *comprehensive* resource, and so the one I use.

<sup>116</sup> I count as "portrait" any compelling evidence that a piece of marble hailing from an ancient statue (in any format) survived till modern times. Reliable reports of lost statues, and of course mere bases, count as well. Ancient reports are not counted.

I arrange the portraits by tiers of extant number of portraits, in two separate columns: literary, and philosophical.

**Tier 1: The literary leaders<sup>117</sup>**

Literary		
Sophocles	54	Trag.
Menander	54	Com.
Demosthenes	47	Rhet.
Homer	43	Ep.
Hesiod	38	Ep.

**Tier 2: The philosophical leaders (with Euripides)**

Literary			Philosophical		
Euripides	30	Trag.	Socrates	37	(Above the schools)
			Epicurus	29	Garden
			Plato	23	Academy
			Hermarchus	23	Garden
			Metrodorus	19	Garden
			Aristotle	18	Lyceum
			Chrysippus	18	Stoa

**Tier 3: Less dominant figures (5 to 11)**

Literary			Philosophical		
Anacreon	11	Lyr.	Zeno	10	Stoa
Aeschines	10	Rhet.	Carneades	9	Academy
Aeschylus	9	Trag.	Antisthenes	8	Cynic
Herodotus	8	Hist.	Colotes	8	Garden
Hyperides	6	Rhet.	Cleanthes	5	Stoa
Thucydides	5	Hist.	Diogenes	5	Cynic
		Also:	Hippocrates	5	Med.

<sup>117</sup> It is useful to have a sense of the scale of the phenomenon. Højte (2005: 591–606) is a survey of the known bases for statues of emperors from the Imperial era, with about 2,300 entries (an undercount, relative to Richter’s measure, since she counts extant statues as well as bases, though this difference is not all that dramatic: bases are more common). This compares with about 550 statues in the list provided here. Put differently, portraits of Homer were at about the same scale as portraits of Augustus.



**Tier 4: More sporadic survival**

Literary			Philosophical		
Moschion	4	Trag.	Theophrastus	4	Lyceum
Pindar	3	Lyr.			
Alcaeus	3	Lyr.			
Panyassis	3	Ep.			
Isocrates	3	Rhet.			
Aristophanes	3	Com.			
Philemon	2	Com.	Heraclitus	2	Presocratic
Xenophon	2	Hist.			
Thespis	2	Trag.			
Lysias	2	Rhet.			
Corinna	1	Lyr.	Aristippus	1	Cyrenaic
Posidippus	1	Lyr.	Archytas	1	Pythagorean
Timotheus	1	Lyr.	Posidonius	1	Stoa
Bacchylides	1	Lyr.	Thales	1	Presocratic
Ibycus	1	Lyr. Also:	Eudoxus	1	Math.
Aratus	1	Ep.			
Stesichorus	1	Lyr.			
Protagoras	1	Rhet.			

The evidence represents primarily the reception of the Greek canon by the highest stratum of the Roman elite. Some of it is from the Greek east, however, and may represent the public spaces of the Greek city. Provenance, at any rate, is rarely certain: the statues had usually reached modern collections already by the Renaissance – and would have been moved about, a lot, in antiquity itself. The division into tiers is not quite arbitrary: the contrast between the first, literary, tier and the second, philosophical, one is manifest, and it is heartening to have the gap between tiers 2 and 3 (none in tier 2 has fewer than 18 portraits, none in tier 3 has more than 11). Thus, even with such small numbers, and with the many difficulties concerning identification, the evidence appears coherent, and indeed, once again, plausible in its own way.

The one major surprise in this evidence is the place of philosophy. As usual, with regard to ancient philosophy, we should make an effort to remember that this is not some academic pursuit. Philosophy was the search for a solution to a lived problem: that of the happy life.<sup>118</sup> Perhaps portraits represented past solutions to this problem and displayed the patron's own moral nature? Or perhaps, regardless of one's "real"

<sup>118</sup> Classical statement by Burnyeat (1982). (For instance, page 30: "[The Skeptic] is still, like any other Hellenistic philosopher, a man in search of happiness.")

philosophical affiliation, a group of Epicurean philosophers, say, telegraphed pleasure and otium: just what was needed at that corner? The point, in general, is that philosophical identities constituted a semiotic system, independent of the semiotics of literature itself.

Even so, the sheer numbers of philosophical portraits do add to the impression gained from the TLG cite counts and begin to suggest that, perhaps, the Egyptian papyri could underplay the significance of philosophy, especially of the Hellenistic schools, relative to the metropolitan centers.<sup>119</sup> While the Villa dei Papiri is essentially an anecdotal find – a single event, however massive – the fact that its excavated collections were so heavily centered around Epicurean philosophy does become somewhat less surprising given the evidence of the portraits (the villa, after all, furnishes quite a few portraits, as well!).<sup>120</sup>

Otherwise, what is most significant is not the relative numbers as such (we would not expect, with this very different medium of recording prestige, any quantitative correlation) but the ordinal structure. This, then, seems to be the overall ranking of the genres, as implied by the portraits:

Tragedy > epic > rhetoric > comedy > lyric > history

The only surprise is in the relative positions of tragedy and epic. We are reminded of the Ptolemaic papyri, and, indeed, the models for the iconographic tradition were formed in the fourth and third centuries BC; but why should the Roman *relative frequency* reflect any Hellenistic pattern? Instead, it is tempting to imagine some kind of context in the sites of performance, real or imagined. Why have a portrait of Thespis, for instance? One is a Roman copy, the other an inscribed base (Roman era) from the theater in Athens (Richter, 1965: 73). Sophocles, Menander and Demosthenes evoked the culture of Athenian performance, whether in Athens itself or elsewhere. A portrait emphasizes the sense of a lived presence in space: the more performative authors suited the medium best. Thus even Homer himself, as well as Hesiod (who must frequently have accompanied him in the iconographic programs), was not more

<sup>119</sup> It is interesting to compare the program of the Ptolemaic portraits in the Serapeum in Memphis (Lauer, 1955): identified are Homer, Pindar and Hesiod; Thales, Heraclitus, Protagoras and Plato. The rough parity between literature and philosophy is suggestive of the future Roman villa (is this parity, then, perhaps yet another Roman imitation of a Hellenistic model?); the choice – which philosophers to represent – is distinctive.

<sup>120</sup> For a survey of this magnificent sculptural set, and its place within modern scholarship, see Mattusch and Lie (2005).

dominant than the representatives of the most obvious forms of performance.

Let us now look inside the genres themselves. The case of epic is clear:

Homer > Hesiod > Panyassis, Aratus

Why Panyassis? I shall return in [Chapter 2](#), page 215, to the explicit, scholarly lists of canonical authors, in which he is indeed included. We do not need to imagine any undetected popularity in antiquity (his TLG cite up to the end of the fifth century CE is a mere 43). Probably there were sufficiently many cases when the iconographic program called for *more than two* epic poets. There was no obvious way to choose which, and Panyassis suited just as well.

Comedy is more interesting:

Menander > Aristophanes, Philemon

The two less common portraits of comic authors were *much* less common than Menander's. Typically one needed just one comic author, and when one needed more – two – the second could be either the second-ranked author of “new comedy”, or the first-ranked author of “old comedy”.

History presents a slight difference from the evidence of the papyri, but not a very surprising one:

Herodotus > Thucydides > Xenophon

The numbers are small, and yet this is in line with the impression we had already from the TLG cites (as well as from a closer consideration of the papyri fragments themselves), that Thucydides may have been less absolutely popular than the sheer number of his fragments suggests.

Consider next the case of rhetoric:

Demosthenes > Aeschines > Hyperides > Isocrates, Lysias, Protagoras

Once again, the numbers are not large. And yet we have one more reason to wonder whether the large number of Isocrates' papyri could not be to some extent a function of his educational role.

Lyric, with very small numbers distributed between many authors, mostly fails to replicate the evidence of the papyri (or, for that matter, of TLG cites):

Anacreon > Pindar, Alcaeus > Corinna, Posidippus, Timotheus, Bacchylides, Ibycus, Stesichorus

Probably Anacreon fitted well the iconographic program of sympotic sites. Otherwise, the relative frequency of Pindar and Alcaeus is based on

tiny numbers – and yet is as we would have predicted (the absence of Sappho, though, is surprising; a statistical accident?). As for the rest, it is obvious that these lyric poets, to the mind of the Roman patrons commissioning their portraits, just did not break out of the pack. Perhaps they were typically framed in groups of several – maybe even many – poets; the emphasis would be on the variety of one’s acquaintance with the lyric. We shall return to this point below, concerning the manner in which lyric poetry presented itself to its ancient audience.

The portraits represent 15 out of 17 authors in the first tier of the table on page 15 above, 11 out of 15 authors in the second tier. It is true that in some cases portraits are identified based on general assumptions concerning ancient popularity, so that the exercise is somewhat circular; but, while circular, it is also solid. Here, then, are the top missing author portraits (listed by 2011 papyrus counts):

Callimachus	83
Apollonius	52
Sappho	23
Alcman	15
Aesop	14 <sup>121</sup>
Euphorion	10

We recall the observation concerning TLG cites: the active elite commemoration of the canon tended to focus on its Athenian component. It does remain intriguing that Roman poets wrote their poetry “in the shadow of Callimachus” (to quote the title of Hunter, 2006) – yet only in a metaphorical sense. Once again, this may represent a certain overrepresentation of the Alexandrian poets among the papyri – or perhaps it may already direct us towards a more nuanced sense of the mental map that accompanied the canon. The Alexandrians have joined the canon – and yet, somehow, in a qualified sense; because, you see, they joined it when it was already formed.

The evidence of the TLG and of the portraits, taken together, tends to confirm the evidence of the papyri. It does suggest, however, that the position of the Alexandrian poets in the canon could have been qualified. More important, it underlines how poorly the papyri serve us in capturing the place of philosophy in the very top levels of metropolitan culture. An

<sup>121</sup> The absence of Aesop portraits (in the sense of marble statues) is somewhat surprising, as the visual possibilities are obvious; there might be a small trace of an iconographic tradition in other media (but even this is uncertain: Lissarrague, 2000). But, once again, here is a case in which sheer papyrus counts are misleading, as most of the Aesop fragments derive from the classroom.

important conclusion: the specialized genres (of which philosophy may have been supreme) did pursue a distinct trajectory from that of canonical literature.

### 1.3.4 *The Codices and the Big Library*<sup>122</sup>

We have compared the papyri with the TLG – so, moving from Egypt into the Greek-speaking metropolitan centers of antiquity. We have compared them with the portraits – so, moving especially into the very elite, Imperial Roman reception of the Greek canon. Now we move to compare the papyri with the practices of narrow circles of elite Christian scholars and patrons, especially in Constantinople, mostly in the fifth to sixth centuries, and then in the ninth to tenth centuries (when the major process of codification took place, first in the transition to parchment and then in the transition to minuscule).<sup>123</sup> We consider the slaves of Roman Oxyrhynchus, carrying their baskets full of shredded papyri into the rubbish dump; and it turns out that their activity predicts very precisely that of the scholars of Byzantine palaces, half a millennium and more later. More precisely, it is dictated by two parameters: previous circulation, and genre. The more papyrus fragments an author has, the likelier he or she is to survive through the manuscript tradition; the more an author writes in prose (or, failing that, in hexameter), the likelier he is to survive. This suffices to account for the Byzantine selection of ancient works.

Of tier 1 (page 15), only one author is missing from the manuscript tradition:<sup>124</sup> this is the famous case of Menander. It is often said that Menander's reputation fell in Byzantine times relative to that of Aristophanes (e.g. Cribiore, 1996: 201). This contains only part of the truth, as the more significant story is that of the rise of Aristophanes rather than that of the decline of Menander. The latter was still very well stocked by late ancient libraries (I return to discuss this in [Chapter 6](#), pages 770–1). In truth, the Byzantines did not do a fantastic job of transmitting Aristophanes, either: five early manuscripts, of which only one contains all the 11 plays we now possess.<sup>125</sup> Perhaps Menander just had worse luck with Byzantine fires. I would not be surprised were a minuscule palimpsest

<sup>122</sup> For the sake of this discussion, I use “codices” to mean “manuscript transmission”.

<sup>123</sup> In what follows, I take the liberty of using “Byzantium” as a synecdoche of Greek-speaking medieval culture as a whole.

<sup>124</sup> I rely on the TLG canon of Greek authors, compiling a list of all authors marked by the field “[cod.]”.

<sup>125</sup> Sommerstein (2010).

to surface – as it did recently for Hyperides, bringing this author, only in 2002, from the “papyrus, but not codex” column to the column of “papyrus, as well as codex”.<sup>126</sup>

This brings us to tier 2. It is best considered together with tier 3, as the two show similar survival into codex: about 60 percent. The losses are:

Alcaeus	Lyr.
Sappho	Lyr.
Archilochus	Lyr.
Alcman	Lyr.
Bacchylides	Lyr.
Euphorion	Ep.
Stesichorus	Lyr.
Epicharmus	Com.
Eupolis	Com.
Simonides	Lyr.
Anacreon	Lyr.
Antimachus (< Colophon)	Ep.
Hipponax	Lyr.

The pattern is clear: a papyrus top-tier author who wrote in prose would always be preserved. Epic poetry would be preserved but, other than the case of Homer, this survival would be qualified (indeed, even Hesiod did not have all his works transmitted). Drama was even more precarious and lyric was entirely lost. Several poets do survive from the Hellenistic era, but in the case of Callimachus, in particular, this is through a restricted and disappointing selection (only the hymns). Apollonius and Aratus are better preserved – but this is because they were known, already in antiquity, almost entirely on the basis of a single work each. So we find, once again, that the preservation of the Hellenistic poets is qualified. But I pause to note immediately that the survival of Hellenistic poetry into the manuscript tradition, while qualified, is in fact very remarkable given the evidence of the TLG citations and the Roman statues. We see a clash: papyrus counts, traditional interpretations of Latin poetry and, now, survival into manuscript all suggest that the major Hellenistic poets enjoyed a canonical status; TLG citations as well as (the absence of) portraits suggest they didn't. Perhaps we need to distrust some of our evidence, but the likeliest account is that canonicity, in this case, actually carried a different meaning. In this case, the key works became canonical, but not so

<sup>126</sup> See Tchernetska (2002). Menander does have two parchment palimpsests, both, however, early majuscule: LDAB 2713, 10072. Their upper text is from the eighth to ninth centuries, so we know that his texts survived until that date at least.

much their authors, because they reached their canonicity on the strength of their allusion to past, canonical masters. Hence the *Phaenomena* and the *Argonautica* were collected, alluded to, preserved; but their authors did not become powerful cultural currencies, on par with the Athenian masters.

Moving below tier 3, the rate of survival at first glance appears to be surprisingly stable. Tier 4 has preserved 23 out of 43 authors; tier 5 has preserved 32 out of 76 authors. The overall pattern is (percentages rounded to the nearest five):

Byzantine survival	
Tier 1	95%
Tier 2	60%
Tier 3	60%
Tier 4	60%
Tier 5	40%

There is a sharp drop between tier 1 and 2, but tiers 2, 3 and 4 are (statistically speaking) identical and even tier 5 does not yet get into free fall. This masks a compositional effect, however. The top tiers are more poetry-heavy, so that we would have predicted higher losses; the lower circulation of tier 4 is cancelled out by its prose contents, so that it ends up surviving equally as well as tier 3. And so it continues: tier 4 loses 13 out of 22 poets, tier 5 loses 13 of its 15 poets – keeping, that is, only the late ancient poets Pamprepus and Nonnus.

Perhaps the most remarkable point in all this is that, in fact, *all* prose authors of tiers 1 to 3 ended up on Byzantine manuscripts. A prose author? No problem, then: to put this in slogan form – collect five papyrus fragments and you're guaranteed a Teubner edition. (We are grateful for the Hyperides find, then, which allows us to see the power of this generalization.) Tiers 4 and 5 do differ from tiers 1 to 3 in that they lose *some* prose authors. Once again, the drop is not dramatic: in tier 4, 14 prose authors are preserved out of 21 (65 percent survival); in tier 5, 30 out of 61 (50 percent survival). The precise percentages are misleading as they are to a large extent a reflection of our ignorance regarding adespota, but the relative frequency is significant: the greater the number of papyrus fragments, the smaller the chances of Byzantine survival, the correlation holding all the way down.

In short, it is clear that the Byzantine pagan canon was a subset of the ancient canon. It is also clear that this subset was informed by Byzantine

preferences in terms of genre. But it appears to have been a subset of precisely the same ancient canon we have seen so far – *preserving the same papyrus ranking*.

It is worth pursuing this comparison further. We consider the fraction of the papyri authors who survive on codex, and note the strong correlation between papyrus fragments and survival. But what about ancient authors found on codex who are *not* represented among the papyri? What do they correlate with? Do they represent, in some sense, a literary culture which the evidence of the papyrus ignores?

I count 173 authors extant on codex but not on papyrus: the size of this database is promising. The chronological breakdown is as follows.

Classical	10
Hellenistic (3rd–2nd centuries BCE)	21
1st century BCE <sup>127</sup>	11
Roman era <sup>128</sup>	81
Late ancient	45

This, once again, is promising: had the list been dominated by late antiquity, the interpretation would be that codex-but-not-papyrus authors are those who came *too late for papyrus*. But most of the authors preserved on codex but not on papyrus are from the Roman era, and the papyri have only themselves to blame for not keeping such authors. Indeed, it is helpful to ignore the late ancient authors and consider the generic breakdown of the remaining authors: just which *kind* of authors did the papyri not represent? I break the list of codex-but-not-papyrus down into two categories of genres: those atypical among the papyrus canon, and those typical among it.

Genres atypical to papyrus		Genres typical to papyrus	
Grammar	25	Rhetoric	21
Technical	23	History	9
Mathematics	20	Novel	1
Philosophy	18		
Medicine <sup>129</sup>	9		

<sup>127</sup> I see this century as belonging more to the Roman era (it includes, for instance, Dionysius of Halicarnassus), but in deference to the standard periodization I count it separately.

<sup>128</sup> I include the TLG category “3rd century”, exclude “3rd–4th century” and beyond. Since our papyrus evidence drops at about the end of the third century, and since there was a certain delay in entry into the papyrus evidence (see p. 55 above), authors straddling the centuries are to be excluded.

<sup>129</sup> The number of medical codex-only authors is very small; they are crowded out as a consequence of the decision made to preserve a monumental amount of the works of Galen.



The only belletristic author extant on codex but *not* on papyrus is the novelist Longus. This is extraordinary, as the numbers involved in such attestations are so small – often no more than one or two papyrus fragments. In all likelihood, then, Longus, too, “should” have had papyrus fragments by now and, instead of, say, three, he has zero because of sheer randomness. The likely conclusion of this tight correlation is that the only way a belletristic author could survive into manuscript form is if he were extremely popular in antiquity itself.

Within the codex-but-not-papyrus subset, Greek literature was essentially written in prose alone. Of the “typical” papyrus genres, history and rhetoric are perhaps “normally” represented: these are such authors as Dionysius of Halicarnassus, Cassius Dio, Diogenes Laertius, Herodes Atticus, Philostratus. . . This is the “Second Sophistic” in its widest sense: was it perhaps less frequent on papyrus? Mostly, too late. (But also: such authors did not get ranked as uniquely canonical, for their ancient audiences, as did those of an earlier age. Even those who were no doubt a sensation in their own lifetime may not have been enduring – as noted already, on page 55, n.98, above, for the novel.) But beyond that is a system of genres very foreign to the world of papyrus, entirely dominated by theoretical or, indeed, technical works. So was this perhaps the “metropolitan” taste, different from that of provincial Egypt?

This conclusion is perhaps not entirely wrong: the theoretical genres must have been better represented in big libraries, which must have been more common in the real centers. But, methodologically, we are still making the wrong comparison. We set side by side the codex-only authors, and the papyrus authors. But by “the papyrus authors” we do not really mean “the authors who circulated as Egyptian papyri”. We mean “the authors identified so far among the excavated papyri”, which actually means something like “the top 168 authors among all those who circulated as Egyptian papyri” (this is a simplification, but it is not far off the mark and it brings the point home). But we should not compare the codex-only authors with the top 168 authors. We should compare them with the papyrus authors *further down*. We are looking at 129 codex-only authors of the relevant eras, and so our comparison should be, as a first approximation, with the authors ranked numbers 169 to 297 among all those who circulated as Egyptian papyri. But wait: we found that the Byzantine selection removed essentially all poetry at that level (and there would have been *some* poetry among the papyri, at this level). Thus we are looking at something rather like the prose authors ranked 169 to 320 among all those who circulated as Egyptian papyri. But wait again: we noticed that

the tendency to preserve a prose author declined somewhat as one went down the papyrus count, from 71 percent at tier 4 to 49 percent at tier 5; here, at tiers 6 and 7, it would be lower still. Maybe a third of the prose authors should be represented, likely fewer. We find, then, that we are looking at the prose authors ranked roughly 169 to 600 or beyond, among all those who circulated as Egyptian papyri. Could those authors have been in some ways comparable with the codex-only authors?

We need to compare the codex-only authors with tiers “6, 7 and below” of the list of authors extant on papyri – the list that we would have had *had all papyri survived*. And so, in the following table, I consider the same numbers as above, now as percentages, considering only prose works. The codex-only authors are compared with the prose authors before late antiquity from tiers 4 and 5. And, if we assume that “codex-only” authors are similar to “tiers 6, 7 and below” authors, we should expect to see a continuity, in the transition from tier 4 to 5, to 6 and beyond.

In the table below, I look at the generic composition of the following three categories.

**Tier 4 (excluding late antiquity), tier 5 (excluding late antiquity), codex-but-not-papyrus authors (excluding late antiquity)**

Tier 4 N = 22		Tier 5 N = 54		Codex-only N = 127	
Gram. 23%	Rhet. 23%	Gram. 19%	Rhet. 13%	Gram. 20%	Rhet. 16%
Tech. 5%	Hist. 18%	Tech. 9%	Hist. 20%	Tech. 18%	Hist. 7%
Math. 0%	Novel 14%	Math. 4%	Novel 2%	Math. 16%	Novel 1%
Phil. 14%		Phil. 28%		Phil. 14%	
Med. 5%		Med. 6%		Med. 7%	
Total 45%	Total 55%	Total 65%	Total 35%	Total 76%	Total 24%

The continuity is remarkable. If we were to try to extrapolate the codex authors as “tiers 6 and 7”, working mechanically from tiers 4 and 5, we would not be too far off the mark: we would have predicted correctly the genre clusters – that is, we would have expected the lower tiers to be dominated by theoretical and even technical works. We would be surprised to see that the “literary” genre best represented was not history (as tiers 4 and 5 would have us expect) but, rather, rhetoric; we would be delighted to discover that, among the “theoretical/technical” genres, mathematics was heavily represented (disappointed, however, that philosophy was less so).

These surprises are not meaningless. It is clear that the ancient literary universe was populated by many obscure historians, providing rich

regional and anecdotal variety: the stuff that fills Jacoby (more on this in [Chapter 5](#), pages 598–604). Such literature had mere local interest. It probably did circulate in Egypt in small numbers, and so Jacoby must have been heavily represented among the papyrus authors ranked 169 to 600. It is not so surprising that this literature disappeared from Byzantium. As for the comparison between mathematics and philosophy, this may once again be a real feature of the evidence: it could be that the Nile Valley simply did not possess mathematical works, which circulated almost entirely in a few metropolitan centers. Even more: it is possible that the large-scale collection of mathematical authors was much more common in Byzantium than it was in earlier metropolitan centers, as a reflex of Neoplatonist habits in late antiquity.

But the key observation is that, in its overall generic composition, we see traces that suggest that the big library of the Nile Valley was not entirely unlike those big libraries of Constantinople, out of which emerged our manuscript tradition. The precise *choice of authors within genres* may have changed, and the emphasis shifted as well from genre to genre, but overall, it appears, the basic nature of a big library was, once again, fairly stable.

We do, in fact, get a glimpse of the Egyptian big library via the (few) extant catalogues: 19 papyri fragments of library catalogues or requests for books, collected in Otranto (2000).<sup>130</sup> The catalogue or request for a book is a bibliophile, scholarly act and it suggests an exceptionally well-stocked library (one does not bother with producing a book catalogue only so as to write “Homer’s *Iliad*, Homer’s *Odyssey*”). Indeed, Homer is mentioned directly in only two of the catalogues. One (Otranto 2000: 90–1; 16 in Otranto’s list) is a fairly complete survey of the collected works of Plato and of Xenophon, followed by a mention by name only of four authors – Homer, Menander, Euripides and Aristophanes – at which point the roll becomes illegible (but would it present any major surprises?). The other (Otranto 2000: 10; 3 in Otranto’s list) is a more detailed catalogue of rolls by the authors: Homer, Callimachus, Pindar, Hesiod, Aeschines and Demosthenes, with a few other names illegible, impossible to identify (“Dionysius” – of whom there are so many) and tantalizing (“Aelian” – is this the correct reading? Who is the reference, in the date of the papyrus, the middle of the first century CE?). Homer also appears in the more scholarly context of commentary: Otranto, 2000: 108 (18 in Otranto’s list),

<sup>130</sup> For a recent discussion of this body of evidence, see Houston (2009). Papyri may be compared, in this case, with epigraphic finds: pinakes in Taurmina, detailing works by relatively rare historians and perhaps a philosopher (Philistus, Callisthenes, Fabius Pictor, and then Anaximander [!]; see Battistoni, 2006).