

CONCLUSION

SUMMING UP POETRY

Rather than re-counting the arguments of the individual chapters in concluding this book, I want to return to the wider perspective of number in relation to poetry. From the preceding chapters there emerge three strands which are worth crystallising explicitly.

First, this study has exposed the multifarious ways in which counting and arithmetic were conceptualised within the cultured elites of antiquity. On the one hand, numbers have an important signficatory power in that they sever the linear connection between quantity and the verbal means used to express it. Poets are aware of the reductive and expansive power of numbers, although they differ on the value and use of such compressions or extensions. Equally, there is an awareness of the perceived tension of counting and arithmetic within poetic discourse, whether it is the unsolvable *Cattle Problem*, the accounting of Catullus' critics or Leonides' isopsephy. The underlying concern is how number as an evaluative system interacts with a verbal system of expression. No clear answers have emerged from the poets over the course of this study, and I think this is because they are more interested in probing rather than solving the overlap of the numerical and the verbal. In terms of the wider cultural significance of these poems, most important to observe is that enumeration is part of the social prestige involved in reading which is found in many of the poems, but which is explicitly noted by Ausonius when he distinguishes between those able and unable to interpret arithmetic wrapped in poetry. Undoubtedly, the majority of numerical thinking was not poetic and was confined to a standard set of calculations useful for everyday life. This book has nevertheless highlighted that counting and arithmetic did have a cultural capital that distinguished between those with and without the requisite abilities, and individual poems are poised to test those abilities. Indeed, the range of poems that I have addressed has made that distinction at differing

levels of arithmetic proficiency: the many ratios of the *Cattle Problem* stand in stark contrast to the arithmetical poems, as again does isopsephic counting. The overarching importance of the poems discussed in this book for a history of numeracy is that they provide a new perspective on the relationship between number and culture. Unlike the didactic project of Euclid's *Elements* Books 7–10 or Nicomachus' later *Introduction to Arithmetic* and unlike Diophantus' dense *Arithmetica*, they evidence writers actively interrogating the place of enumeration and computation within Graeco-Roman culture. The poems explore the cultural value of numbers.

By the same token, of course, the added cultural capital of numbers in poetry can have an exclusionary effect. While I hope to have demonstrated the literary sophistication of Archimedes' and Leonides' poetry and the later arithmetical poems, they were not works that had an extended reception in antiquity. Their thorough embracing of isopsephy and an arithmetical aesthetics made it difficult for some readers to 'solve' their calculating compositions and to take account of their intellectual stakes. Callimachus and Catullus, conversely, keep arithmetical challenges at arm's length and instead embed engagements with number within wider discourses about poetry, its form and critical appraisal. Canonical poets may be canonical precisely because their use of number was pitched towards the broadest readership, whereas a deeper engagement pushed other poets into relative obscurity. A rounded picture of this poetic practice, however, is only possible by setting canonical and obscure poetry side by side. This ultimately shows that poetry and number in Graeco-Roman antiquity coincided on many different levels and this encounter had a hand in determining the reception of that poetry.

The complex interaction between number and poetry also has an impact on common conceptions of Graeco-Roman poetry in the modern era. In contradistinction to the idea of poetry as something read and appreciated intellectually in the mind of the reader, the use of number and arithmetic underscores poetry as an action that is performed. Many of the poems that I have discussed in various ways require calculation. An operation must be carried out to produce information. When it comes to composing, Apollonius

playfully constructs a hexameter which has been fashioned so as to signify a large number, and Catullus spotlights how composition can be numerical when the expression of his feelings morphs into, and enacts, computation. Reading poetry is also an operation. It is manifest in the case of Leonides, where words and letters must be converted into numbers and transformed into totals. The arithmetical poems in the *Palatine Anthology* highlight just how much calculation is an operation which readers enact in producing meaning from the written words before them. There survive examples of geometry in poetry, to be sure, such as the diagram sketched by Thales in Callimachus' first *Iambus*, the shapes described in Dionysius Periegetes' *Description of the Known World* (e.g. 175–80, 277–8, 620–2, 1130–1) or Longinus' reading of Homer as measuring out the cosmos through his similes (9.4–5).¹ However, they are aimed at spatialising and visualising what the poet wished to portray with words. Number, conversely, shows up the interactive aspect of poetry from the point of view of both composition and reception. This is evident in texts which are not solely about enumeration which one might describe as 'more canonical'. Callimachus' Reply represents a tradition of criticism in which poetry is submitted to numerical analysis. As a discourse, poetry is about listing, sorting, arranging and processing information (and nowhere more so than in the catalogic, archival *Aetia*); in short, poetry is accounting for the world. Rather than the world of numbers and letters progressing along two distinct intellectual paths in antiquity, then, approaching and appreciating poetry has a numerical aspect.

At the literary historical level, studying number and poetry over the course of antiquity has allowed me to plot out the rough image of a *tradition* of composing poetry on numerical themes. This book has combined passages that were both well known in antiquity and remain so to scholars in the field today with less well-known works and poetic habits. In and across individual chapters, nevertheless, 'central' poetic texts are aware of, resonate against and even respond to the same poetic-cum-mathematical concerns identifiable in 'marginal' works. And, vice versa,

¹ On Dionysius' geometrical imagery see Lightfoot (2014) 120–3, and on Longinus' see Porter (1992) 96–100.

‘marginal’ poems develop their own shared numerical and arithmetical readings of ‘central’ texts. In navigating through the poetic inheritance, later poets engaging with number not only reread the canon as it was available to them, they began to create their own traditions of reference within it. A case already well known is the use of the *Odyssey* and the figure of Odysseus by Hellenistic and later geographers and historians. In articulating their own projects they both connected to and developed the presence of Odysseus within the literary tradition as well as creating a tradition of Odysseus ‘the geographer’.² In a similar vein, this examination of the intersection of poetry and number has followed a series of poets as they take a numerical reading through the tradition and how, in the process, they have constructed what might be called a canon of numerical poetic moments. One facet of this ‘tradition’ is the reception of Callimachus. Despite his resistance to poetic criticism involving counting, Catullus and Leonides returned to his poetics in order to negotiate their own use of numbers. Likewise, the enumerations in *Iliad* 2 enjoy an arithmetical afterlife. Archimedes and the composer of an arithmetic epigram respond to and develop the poetic challenge of enumerating a large mass which Homer had first identified. Given that an arithmetical poem was likely interpolated in Diophantus’ *Arithmetica* in addition to the enumerating epitaph on him found in *AP* 14, this could also be seen as the beginnings of a tradition. The same might be said of Catullus *c.* 1 and its echo in the preface to Ausonius’ *Riddle of the Number Three*. The point, in any case, is that the patterns of thought in these works are not simply repeated across time, but rather that they constitute an intellectual project to which subsequent poets responded and contributed. This study has shored up numerical reflections in poetry as an operative discourse in the literary landscape. I hope it will provide a square and solid base for further studies: additional accounts await.

² For Eratosthenes’ use of Odysseus cf. e.g. Strabo 1.2.15; for the Odyssean model in the *Periodos to Nicomedes* see 98–102; for Dionysius Periegetes’ Odyssean aspects see Lightfoot (2014) 106 n.85; for historians’ use see Marincola (2007).