The Idea of Στοιχεῖον
in Grammar and Cosmology:
From Antique Roots to Medieval Systems

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fulfilment of the requirements
for the degree of
Doctor of Philosophy
in Combined Historical Studies

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University of London

2018
I declare that the work presented in this dissertation is my own.

Signed: ____________________________

Date: ________________
Abstract

This thesis defines and follows the development of the concept expressed by the Greek στοιχεῖον and the Latin elementum. From approximately the sixth century BC to the twelfth century AD, these words had three simultaneous meanings: letter, number and element, corresponding respectively to the disciplines of grammar, arithmetic and cosmology. The first part of the thesis, in two chapters, draws primarily on Greek philosophical, grammatical and arithmetical sources to delineate this polysemy, with particular attention to Pythagorean number cosmology and the foundational and lasting role of Plato’s Timaeus. Once the triple concept is established, the second part, in four chapters, tracks it through late Antiquity in Hellenistic religious texts and in Abrahamic scriptural sources and exegetical literature, identifying semantic analogues in Hebrew and Arabic. The third part of the thesis studies particular cases of alphanumeric cosmology in doctrinal systems of major Jewish, Christian and Islamic authors of the High Middle Ages, namely in the Sefer Yetsirah, in Aquinas and Ibn ʿArabi. In the conclusion I gather the comparative evidence to situate the concept of the alphanumeric element in its relations to the broader metaphysical, theological and cosmological heritage of the International Mediterranean Middle Ages.
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Acknowledgements

A work of this extension and scope renews the awareness that gratitude tends by nature towards infinity—so many unexpected favourable circumstances, and sources of help and information and good will... Here is an attempt at doing justice to some of them.

The Warburg Library was described almost a century ago as ‘the one open gate to the cosmopolis of knowledge,’ and this holds true not only as regards the layout of the city of knowledge, its avenues and parks which we visit in our minds, but also very palpably in the citizens themselves—and what joy it is to benefit from their advice and convivial conversation. Among these cosmopolitans of knowledge I would like to thank in particular Guido Giglioni, Christopher Johnson, Jill Kraye, Berthold Kress, Jonathan Rolls, Alessandro Scafi and Claudia Wedepohl. Warm thanks to Peter Pormann, who put up with an early draft of the thesis and made valuable suggestions.

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This thesis would have been unimaginable and, as I now realise, impracticable in many ways without the inspiration, encouragement and expert guidance of Charles Burnett, who has supervised my research and improved on every detail of my work with the lightest touch and self-effacing generosity.

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I cannot really thank my family: my children teach me and fix me every day with their pure intent and their frankness; and to that lovely lady who sits at the other end of my desk and makes my life beautiful in so many ways, my accomplice and best friend, I tell you, now I will have time to ask you out.

I dedicate this thesis to the memory of José Manuel Briceño Guerrero (זצ״ל), who taught me the Greek hexameter on a blessed Venezuelan afternoon that I never forget.
Notes to the Reader

Translations are mine throughout, except where otherwise stated, in order to preserve consistency as far as possible, in literalness and terminology. In view of the semantic complexity of the study, I have often taken the liberty to force an overly etymological translation to bring out a particular aspect of a word.

Transliterations

Single Greek words are indistinctly used in transliteration or Greek script depending on the context. Running Greek text is never transliterated.

Hebrew and Arabic running text is left in the original script, while single words or short phrases are transliterated according to the tables below. Vocalisation is only used in specific contexts according to need, as when a given passage is studied in depth.

Hebrew Transliteration

My transliteration combines the two current varieties (יראש 'simple' and מְדֻיָּק 'precise') of the Academy of Hebrew Language, 2007, and it is almost identical to the 'General-Purpose Style' in the SBL Handbook of Style (2nd edn, 2014).

<table>
<thead>
<tr>
<th>Hebrew Transliteration</th>
<th>Greek Script</th>
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<td>aryl</td>
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Arabic Transliteration

The transliteration follows the current usage of Brill’s Encyclopedia Islamica and the Oxford Journal of Islamic Studies.

<table>
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<tr>
<th>Arabic Letter</th>
<th>Transliteration</th>
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<td>غ</td>
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Bibliographical Style

With very minor modifications to follow Warburg Institute usage, I have done my best to follow the style specifications of the 16th edition of the Chicago Manual of Style, as implemented by the biblatex-chicago package of the TeX typesetting system (version 1.0rc5, 16.01.2018). More specifically, I have used the ‘notes & bibliography’ style of its ‘author-date’ system. This means that details of every title are given in full in a footnote upon first reference, and thereafter abbreviated. Full bibliographic details, including URLs and DOIs when available, are given in the Bibliography. Needless to say, all the inconsistencies and shortcomings in the usage of these superb tools are mine.
# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<td>DELG</td>
<td>Chantraine, P., <em>Dictionnaire étymologique de la langue grecque: histoire des mots</em>.</td>
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<tr>
<td>DGWE</td>
<td>Hanegraaff, W. J., <em>Dictionary of Gnosis &amp; Western Esotericism</em>.</td>
</tr>
<tr>
<td>DNP</td>
<td>Cancik, H., H. Schneider, and A. Pauly, eds, <em>Der neue Pauly: Enzyklopädie der Antike</em>.</td>
</tr>
<tr>
<td>DSS</td>
<td>Buck, C. D., <em>A Dictionary of Selected Synonyms in the Principal Indo-European Languages</em>.</td>
</tr>
<tr>
<td>Du Cange-Grec</td>
<td>———, ed., <em>Glossarium mediae et infimae graecitatis</em>.</td>
</tr>
<tr>
<td>EH</td>
<td>Ernout, A., and A. Meillet, <em>Dictionnaire étymologique de la langue latine</em>.</td>
</tr>
<tr>
<td>GLK</td>
<td>Keil, H., ed., <em>Grammatici latini</em>.</td>
</tr>
<tr>
<td>Klatzkin</td>
<td>Klatzkin, J., <em>Thesaurus philosophicus linguae hebraicae</em> (Otsar ha-munahim ha-filosofiyim).</td>
</tr>
<tr>
<td>LBG</td>
<td>Trapp, E., ed., ‘Lexikon zur byzantinischen Gräzität.’</td>
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<td>Munjid</td>
<td>al-Munjid fi al-lughā.</td>
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</table>


RIS-Beirut  Ikhwān al-Ṣafā’, Rasā’il Ikhwān al-Ṣafā’ wa Khullān al-Wafā’.

RV  Mansfeld, J., ed., Die Vorsokratiker.

Schol. in Dion. Thrax  Scholia in Dionysii Thracis Artem grammaticam.


Tāj  al-Zabīdī, M., Tāj al-ʿarūs min jawāhir al-qāmūs.

Introduction

At the beginning of this research, as is so often the case in philosophy, there is a feeling of wonder, and there is Plato.

Before entering into the details of the creation of the elements, in the dialogue that bears his name, Timaeus mocks earlier philosophers who referred to the elements as στοιχεῖα (stoicheia), ‘letters’, observing that those στοιχεῖα ‘are not even syllables’ of reality, meaning by this that these ‘so-called elements’ (τὰ καλούμενα στοιχεῖα) are already compounds and far from elemental. The pun is involved, and in its complexity it establishes a grammatical model of the cosmos, and naturally, in this model, the letters of the alphabet are the smallest parts of reality. I had barely been exposed to the puzzling and fascinating cosmological doctrines of the Timaeus when I first read these lines, but I had already had some acquaintance with the Hebrew Sefer Yetsirah, the Book of Formation, where the divine Artist creates the universe by means of letters and ‘numbers’, and the family air between these two works, so distant from each other chronologically and culturally, made a strong impression on me. As I now try to find a concise way to introduce this research work, it occurs to me that it could be safely said to be ‘an attempt at uncovering the links or tracing the pathways between Timaeus and Sefer Yetsirah.’ Perhaps by unfolding what is implicit in such formulation, the introduction will be made clearer.

Coming from Plato means not only that this letter cosmology generated much speculation among his Greek successors, but also that through direct translation and indirect influence, it would generate a wealth of treatises and commentaries in Latin, where the word elementum is attested with the same combined meaning since Lucretius and Cicero, and then through Syriac translations and directly in Arabic and Hebrew—this is part of the story I mean to tell in the following pages. So it can be said that this is a work on the Platonic tradition, and it is a work about the transference of knowledge from Greek antiquity to the Mediterranean High Middle Ages, and thus from Greek into Arabic, Hebrew and back to Latin.

‘From Timaeus to Sefer Yetsirah’ means also from a philosophical metaphysical

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1. Timaeus, 48b8.
2. See below, p. 33.
discourse to a discourse pertaining to mystic doctrines of an Abrahamic religion, and so this can also be considered a work on comparative philosophy and comparative religion. But this is all too general, and the reality is that my research in these pages follows a very narrow thread through a long and winding road, ‘struggling with every care,’ as Aby Warburg intended, ‘to cast light on one single obscurity, thereby illuminating the great general development pathways in all their interconnections.’ In fact, it would be fair too to inscribe this enquiry within the Warburgian understanding of cultural history, Kulturgeschichte and Kulturwissenschaft, as a very broad field with room for art, the sciences and religion to be studied in their interplay and interactions.

The Concept

Any dictionary of Ancient Greek will give two main meanings for the word στοιχεῖον, that of ‘letter’ and that of ‘element;’ καὶ στοιχεῖα means ‘the 24 letters’, but δέ στοιχεῖα means ‘the four elements’. In addition to this grammato-physical duality, letters were used from the sixth century BC and down to the High Middle Ages to represent numbers: Greek, Hebrew and Arabic alphabets were used in very similar ways for all sorts of arithmetical purposes, from everyday calculations to advanced mathematics. The joint usage of the same notation by language and numbers allowed naturally for certain practices halfway between linguistics and mathematics which are quite alien to our contemporary experience of ‘number’ and which I think can be accurately called alphanumeric. These practices were rooted in a subtly different perception of the boundaries between letters and numbers, and this is why this work is also an attempt at ‘a wider semiotics of writing’ in which the alphabet is considered not just a graphic device, but a very tight-knit integration of phonetic, graphic and numerical values which when combined determine the extent of its applications in other fields. This is also why this work is concerned with grammar as much as with arithmetic, and with phonetics and prosody as much as with calligraphy, in a synthesis that might be best characterised as ‘alphanumeric cosmology.’

6. Other denominations used in very closely related works include ‘letter mysticism’, ‘numerology’, ‘lettrism’, ‘Ḥurufism’. Even though some are lexically simpler to use, they have the disadvantage of being one sided or culturally and historically charged. Of course, new and descriptive compounds are possible, like ‘alphanumerism’, or reclaiming the rare ‘stichology’, but I would not like to be responsible for proliferating neologisms.
Thesis Structure

The examination of this triune concept of letter-number-element, and its elaboration in ancient and medieval scholarship will be the object of the thesis chapters. It is a work in two phases and nine chapters which follow rather loosely historical chronology: first a defining phase, specific, descriptive and idiographic (Part I), restricted mostly to the Graeco-Latin tradition, and then a comparative phase, illustrative, synthetic and cosmopolitan (Parts II and III).

Part I establishes the object of my research in all its dimensions: Chapter 1 is the most textual based of the thesis. It is devoted to the grammatical aspect, and it runs mostly as a series of glosses to passages from philosophers and to the commentaries on the grammar primer attributed to Dionysius Thrax. Chapter 2 deals with the arithmetical aspects, with a special emphasis on the Pythagorean tradition, and in particular on the fragments attributed to Philolaus and on the Introduction to Arithmetic by Nicomachus of Gerasa.

Part II includes four chapters, mining the scriptural traditions of late Hellenistic and early medieval periods, incorporating the views of evolving, growing and nascent Abrahamic religions. Chapter 3 studies Jewish Biblical and Rabbinic texts, and Chapter 4 does the same with early Christian sources. Chapter 5 tries to deal in unitary fashion with the very heterogeneous body of late Hellenistic Hermetic, Gnostic and magic texts, and Chapter 6 looks at the Qur’ānic and related Islamic exegetical literature.

Part III, in three chapters, explores some specific cases of Abrahamic alphanumeric cosmology in a dually understood ‘theurgic’ dimension: as the creative act of the world-making deity, and as the divinely oriented work of man; hence this part includes texts more closely related to cosmogony, liturgy, magic, and alchemy. Chapter 7 focuses on the basic structure and concepts of the above-mentioned Sefer Yetsirah; Chapter 8 looks at certain Celtic and Scholastic Christian practices and doctrines; and finally Chapter 9 follows the alphanumeric elements through major Islamic philosophical texts, including the Epistles of the Brethren of Purity and some texts by Muḥyī al-Dīn ibn ʿArabī.

The time span covered by the research is given, roughly, by the two ends of what I suggest we may call the ‘alphanumeric age,’ between the late sixth century BC, when numerals and letters first coalesced in the Greek Milesian system, and the twelfth century AD, when the introduction of the Indo-Arabic numerals around the Mediterranean was becoming generalised and letters and numbers ceased to have a single ‘body.’ This will be discussed in some more detail in the final Conclusion.
Survey of Scholarship

Aside from excellent specialised works on Jewish, Islamic and Hermetic alphanumeric cosmology, there is a remarkable dearth of English-language literature on this topic in general. There are two major contributions, both originally in German and never translated into English. The one closest to my research, though second in chronological order, is Franz Dornseiff’s 1922 monograph, *Das Alphabet in Mystik und Magie*.

Dornseiff himself expresses in his introduction the desirable opening towards more Eastern sources than he could include. I hope that this thesis will at least in some ways be a contribution towards that *desideratum*, as it is also an updating of sources regarding these topics of alphanumeric symbolism and alphanumeric speculation broadly speaking. The second major landmark is Hermann Diels’ *Elementum*, a comprehensive historical lexicological work, tracing the history of the words στοιχεῖον and *elementum* in great detail, and of the many variations of the ‘letter simile’ (*Buchstabengleichnis*) and the ‘lettercase simile’ (*Schriftkastenbild*, assuming a set of moveable printing types).

Dornseiff’s work became an undisputed reference work for the subject and had no direct continuators, but Diels’ prompted several kinds of partial refutations and additions on different fronts. Lagercrantz (1911), Vollgraff (1949), Koller (1955), Burkert (1959), and Schwabe (1980) were explicitly in dialogue with Diels mostly about the Greek term, while Rogge (1923), Sittig (1952), and Coogan (1974) focused on *elementum*.

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Lumpe (1962)\textsuperscript{17} gives a brief account summarising much of Diels from the perspective of conceptual history. Balázs (1965),\textsuperscript{18} barely cited elsewhere, gives what I consider an important insight into the metric and prosodic associations of the Greek. Druart (1968)\textsuperscript{19} has examined very carefully the use and scope of \textit{στοιχεῖον} in Plato’s works, complemented by the more recent work by Laspia, who gives a very useful summary of the \textit{status questionis}.\textsuperscript{20} I should also mention here an important recent work by Weiss\textsuperscript{21} which takes Dornseiff as starting point.

Drawing variously from the above, the following have elaborated more on aspects of the concept itself and less on the philological aspect. Ryle (1960)\textsuperscript{22} deals with logic and the Platonic theory of forms; Lohmann (1980)\textsuperscript{23} with mathematical related terms; Vogt-Spira (1991)\textsuperscript{24} studies the phonetic-written duality, and Crowley (2005)\textsuperscript{25} treats specifically Aristotle’s usage. Among encyclopedic articles, I have found Kittel’s\textsuperscript{26} and Blössner’s\textsuperscript{27} particularly orientating.

My primary intention in this new research on an old theme is to go back to the original texts and to expand the range of texts examined; in particular to study the semantic analogies found in Hebrew and Arabic, which with Greek and Latin constitute the main scholarly languages of the Mediterranean Middle Ages. This expansion of the field of vision is of course made possible by profiting from the insights of all the above scholars.

As may be surmised, given such precedents, this work pertains initially to philology or historical linguistics, and more specifically to lexicology, since it begins with the study of one word in one particular language, but the reader will quickly notice that

\begin{itemize}
  \item J. Balázs, ‘The forerunners of structural prosodic analysis and phonemics,’ \textit{Acta Linguistica Hungarica} (Budapest) 15, nos. 1–2 (1965): 229–86.
  \item T. Weiss, \textit{Atitiot Shnebrayn Shemay Erelot} (Letters by which Heaven and Earth Were Created) (Jerusalem: Bialik Press, 2014).
  \item N. Blössner, ‘Stoicheion,’ \textit{Historisches Wörterbuch der Philosophie} (Basel), 1998.
\end{itemize}
στοιχεῖον is not the object of my study, but merely one of the names of my object of study, and it is valuable only because of its synthetic semantic power, and because of its place in the history of Greek philosophy. Because this is in fact the study of a polysemy, the words themselves, στοιχεῖον or elementum or sefirah or ḥarf, are only important as facets of the ‘jewel’ (jawhar, Ar. for jewel, essence, Gr. ousia), or as gateways into the fullness of the concept. By studying the words, we see more clearly the aspects of the concept, which in turn allows us to identify other terms used for one or other aspect of the same root concept, in what is already part of a semantic enquiry, or the history of an idea.

Methodology Matters

Methodologically speaking, harking back to Ernst Curtius, my starting point is then from ‘the scientific technique which is the foundation of all historical investigation: philology,’ not however with philology as an end in itself, but more specifically, in the line of one of my basic references, assembling a diachronic semasiological study—exploring the etymologies from the first historical occurrences of the concept, and following from then onwards the shifts in meaning.

This alternating approach between word and concept is perhaps what Gadamer means when explaining, ‘what conceptual history can do is to travel the way from word to concept and back again, keeping the path clear,’ for ultimately, ‘just as music is inconceivable without overtones, the conceptual language of philosophy is only entitled to opinions by the concord of its overtones, which restore the vague, abstracted field of a given concept to the natural power at its origin.’ It is precisely this travelling to and fro (a μέθοδος proper) between concept and terms that I intend to pursue, keeping the questioning open and paying attention to the conceptual overtones.

Thinking of ‘keeping the questioning open,’ I also agree heartily with Gadamer’s observation that ‘the purpose of enquiry in conceptual history can hardly be that of achieving a clearcut historical elucidation […] but it should rather be the case that through the enquiry are ascertained the limitations of such elucidation.’ This in fact brings to mind the following words addressed by Ernst Cassirer to Warburg in 1926 referring to the Kulturbibliothek:

29. Burkert, Burkert, ‘ΣΤΟΙΧΕΙΟΝ.’
31. Ibid., 13.
May the organon of intellectual-historical studies which you have created continue to ask us questions for a long time.\textsuperscript{32}

Regarding the cultural-historical aspects that at once frame and are determined by the concepts studied, I have tried to focus on the continuity and comparability of the philosophical tradition, striving for the ‘intuitive perception of an essence’ instead of trying to ascertain ‘genetic causes, currents, influences.’\textsuperscript{33} Inasmuch as the concept of philosophy that I am obliged to take as my departing point here is the broader sense of ancient and medieval philosophy, this is also a work on comparative religion, or at least on comparative theology and mysticism, since alphanumeric cosmology falls neatly within their ken.

In view of the philological starting point, that aims at drawing as much knowledge as possible from a single polysemy, and in view of the nature of the deeply entwined and interdependent medieval civilisations,\textsuperscript{34} my approach to the comparative method is a carefully balanced exercise in \textit{untranslatability}. I shall try to ‘observe the flexibility of a religious pattern’ as it is ‘adopted and transformed across a wide range of chronological, linguistic, and religious boundaries.’\textsuperscript{35} The basic idea was expressed by Humboldt: ‘different languages are not so many designations of a thing: they are different perspectives on that same thing.’\textsuperscript{36} This means that in each language, most words do not simply denote a reality, but rather express a synthesis of related meanings.\textsuperscript{37} A fitting illustration is that of a jigsaw puzzle piece. Every language would be a different cut of the underlying picture of reality, and so, even though the final image is always the same, the pieces/concepts of each puzzle/language tessellate in different ways. I shall be comparing the many words from Greek, Latin, Hebrew and Arabic sources with the sole aim of revealing the underlying unitary concept that manifests in so many varied ways.

Ultimately, it is my intention to expose, by unravelling the linguistic complexity, what Nietzsche called the \textit{Geistergespräch}, the conversation of minds, as it unfurls through the centuries and cultural worlds from antiquity to the High Middle Ages, ‘a

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  \item \textsuperscript{32} E. Cassirer, \textit{The Individual and the Cosmos in Renaissance Philosophy}, trans. M. Domandi (University of Chicago Press, 2010), xiii.
  \item \textsuperscript{33} H. Corbin, \textit{The Concept of Comparative Philosophy} (Ipswich: Golgonooza Press, 1981), 2.
  \item \textsuperscript{34} See R. Wisnovsky et al., eds, \textit{Vehicles of Transmission, Translation, and Transformation in Medieval Textual Culture}, vol. 4, Cursor mundi (Turnhout: Brepols, 2011), 1–2.
  \item \textsuperscript{35} \textit{Ibid.}, 22.
  \item \textsuperscript{36} Cited in B. Cassin et al., \textit{Dictionary of Untranslatables: A Philosophical Lexicon}, Translation/Transnation (Princeton University Press, 2014), xix.
  \item \textsuperscript{37} A remarkable early precedent for this awareness is found in the Jain logical principle and religious doctrine of ‘non-one-sidedness’, \textit{anekāntavāda}, or multiplicity of viewpoints (\textit{Concise Oxford Dictionary of the World Religions}, s.v.).
\end{itemize}
conversation about fundamental human questions going on between authors ancient and modern.\textsuperscript{38}

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Part I

Defining the Concept
Chapter 1

Notes on Early Alphabetic Cosmology

Starting from Aristotle’s ‘Lexicon’

The locus classicus for the speculation on στοιχεῖον, and effectively the first historical account of the use of the term, is the definition given in book Δ or the ‘Lexicon’ of Aristotle’s *Metaphysics*,¹ a book of central importance for ancient and medieval commentators of Aristotle.² I will now go in detail through the various parts of this definition, following the precedent of Diels, whose comprehensive history of the word in Greek and Latin is still the basic indispensable reference.³

As I go through each section of what is really a collection of five complementing definitions, I will start taking note of the properties of the στοιχεῖον as they crop up. A list of such properties will be of the greatest usefulness for the comparative phase of this research in order to recognise the same concept in different contexts and languages. As a visual aid, I shall henceforth use this sign 𝕇 on the margin to indicate the occurrences of the properties, which will be then listed together at the end. Without willing to jump ahead, I would like to note that most of the meanings that may seem to be strained out of these lines have been actually brought out over the centuries in the translations of στοιχεῖον into Latin and the Semitic languages.

part 1 chapter 1

ἐτέρας τῷ εἴδει αὐτῶν, ἀλλὰ κἂν from themselves. If an element is divided, the διαιρῆται, τὰ μόρια ὁμοειδή, οἷον parts are formally the same as the whole: e.g., a ὤδατος τὸ μόριον ὕδωρ, ἀλλὰ οὐ τῆς part of water is water; but it is not so for the syllable.⁴

In this first definition, several adjectives are predicated of στοιχεῖον, but the basic initial description is ἐξ ὧν σύγκειται, ‘from which there is composition,’ so the first property we have is that στοιχεῖον is a component, a constituent like a piece of a puzzle. Elements P are systemic; they do not exist in isolation.

Next, πρῶτον is used: elements are ‘first things’, they are primordial. There is in P this some overlap with the word ἀρχή, which implies origin and precedence, that is a cosmogonic or generative, and a logical causal meaning. The elements are origins and P causes, and this is related to the next property.

A fine point made in the definition is the use of ἐνυπάρχον to characterise στοιχεῖον as a distinctly ‘immanent’ principle. In apparent contrast to ἀρχή or αἰτία, στοιχεῖον P is ‘consubstantial’ to entities, not only underlying them, but also—to elaborate on the etymology of ἐνυπάρχον—in-under-lying and determining them from within themselves. It should be noted, however, that the distinction between στοιχεῖον and ἀρχή, far from being clear, has a long history and is rather undecided in the Aristotelian corpus,⁵ as shown for instance in De gen. et corr., 329a5:

"Ὅτι μὲν οὖν τὰ πρῶτα ἀρχὰς καὶ στοιχεῖα καλῶς ἔχει λέγειν, ἔστω συνομολογούμενον.

Let it now be agreed that it is right to call the primary beings ‘principles’ and ‘elements’.

The next attribute of στοιχεῖον found in the first definition is ἀδιαίρετος τῷ εἴδει, ‘indivisible in form’.⁶ This means that the elements are simple, uncompounded, and P Alexander of Aphrodisias clarifies in his commentary (354.26ff): οὐ γὰρ κατὰ τὸ ποσὸν, not as regards quantity. The addition of τῷ εἴδει, ‘regarding the form’ or ‘essentially’, reinforces the ambiguous initial πρῶτον, like τὰ πρῶτα in the above quotation from De gen. et corr., in that it has the effect of leaving the ‘materiality’ of the elements undecided. Ῥᾳ πρῶτα can refer to bodies just as well as to some indeterminate manner P

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⁴. Emphasis mine. Cf. the translation and comments in Crowley, ‘On the Use of Stoicheion.’
⁶. The appendage εἰς ἕτερον εἶδος has been convincingly shown to be a misguided later addition in M. E. Kotwick, Alexander of Aphrodisias and the Text of Aristotle’s Metaphysics (California Classical Studies, 2016), 72–4.
of being. This subtlety did not escape Alexander, who contrasts it with the following paragraph of the definition, as I shall do now.

Similarly, those who speak of the ‘elements’ of bodies do so referring to the parts into which bodies are ultimately divisible, and which are not further divisible into other parts different in form. And whether they speak of one or more than one such, they call them ‘elements’.

In this second definition the στοιχεία are unequivocally corporeal principles, and Alexander notes that this refers to the atomists or to Empedocles ‘who had everything else generated by the four’ (Ἐμπεδοκλέους τῶν τεσσάρων τἆλλα γεννῶντος). Thus, according to this, the elements are corporeal and their implicit generative power is made explicit by the verb γεννῶ of the commentary.

The term is applied with a very similar meaning to the ‘elements’ of geometrical propositions, and generally those of demonstrations; for the first demonstrations which underlie the many other ensuing demonstrations [1014b] are called ‘elements’ of demonstrations. Such are the primary syllogisms consisting of three terms with one middle term.

This meaning of στοιχεία as the principles or axioms of geometrical demonstrations (διαγράμματα), is precisely the meaning of the word in the title of Euclid’s famous work. According to this definition, the elements are axiomatic and fundamental, just as the geometric axioms which underlie and buttress Euclid’s edifice. Burkert observes that for Menaechmus, στοιχεία here refers to the postulates, and this is for him the meaning of Euclid’s title.

It may be observed that these meanings are already contained in nuce in the verb ἐνυπάρχω we had encountered, and that the various definitions would seem to develop and amplify a few basic notions. This is precisely Crowley’s point in rejecting ‘the common assumption that the use of the term stoicheion in physical, metaphysical, or more generally cosmological contexts, in the general sense of principle of body, is a

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metaphorical derivation from some other use of *stoicheion*.  

It is also made clear, especially by the mention of the primary syllogisms, that the elements are organic or interdependent, and integral in the sense of necessary to make a whole complete. Referring to this definition, Burkert explains they are ‘mathematical formulations which complement each other in order to perfect a system and which are logically inherent in each other.’ In the *Poetica*, Aristotle illustrates this clearly: 

> στοιχεῖον μὲν ἐστιν φωνὴ ἀδιαίρετος, οὐ πᾶσα δὲ ἀλλ’ ἐξ ἧς πέφυκε συνθετὴ γίγνεσθαι φωνή, ‘στοιχεῖον is an indivisible utterance; not just any, though, but the one upon whose combination arises a composite utterance.’

Though never so explicit in Greek grammatical tradition, this is the quality eventually called articulatio in Latin grammar, upon the translation of συνθετὴ φωνή as *vox articulata*.

Following from the above, the term ‘element’ is also applied metaphorically to any small unity which is amply serviceable; and so that which is small and simple and indivisible is called an ‘element.’ Hence it comes about that the most universal things are elements; because each of them, being a unity and uncompounded, underlies many things—everything rather, or very many things. And so it is that also the unity and the geometrical point are seen by some as first principles <and elements>.

From this definition we retain two complementary attributes: the elements are small, or rather minuscule (Alexander: ἐλάχιστα πάντῃ) like the geometric point, and they are universal, most-encompassing or pervasive. Like the geometric point, in spite of being dimension-less, they are boundlessly present. They are also very interestingly called ἐπὶ πολλὰ χρήσιμον, i.e. useful and used in many ways, and reliable; one could say operative and helpful. They are like reliable tools, which brings to mind how, according to Hebrew lore, ‘The Holy One, praised be He, said, “I need workers.” And the Torah said to Him, “Let me provide you with twenty-two workers, the twenty-two letters which are in the Torah.”’

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12. Quoted in C. Bandt, *Traktat Vom Mysterium der Buchstaben*: kritischer Text mit Einführung,
Something else to note in this definition is how the last line equates ἀρχαί and στοιχεῖα. In fact, most manuscripts only have ἀρχὰς here, but Alexander has the addition καὶ στοιχεῖα which I have reproduced. As we have seen above, the difference between the two words is rather blurred in Aristotle. Only a few paragraphs before these lines, in 1013b20, the definition of ἀρχή makes of it a genre including φύσις, στοιχεῖον, διάνοια, προαίρεσις, οὐσία and τὸ ὤν ἑνέκα!

5 ἔπει οὖν τὰ καλούμενα γένη καθόλου καὶ ἀδιαίρετα (οὐ γὰρ ἔστι λόγος αὐτῶν), στοιχεῖα τὰ γένη λέγουσιν τινες, καὶ μᾶλλον ἢ τὴν διαφορὰν ὅτι καθόλου μᾶλλον τὸ γένος: ὃ μὲν γὰρ ἐστὶ διαφορά ὑπάρχει, καὶ τὸ γένος ἀκολουθεῖ, ὃν ὑπάρχει, ὡς καὶ τὸ γένος, οὐ παντὶ ἡ διαφορὰ. ἁπάντων δὲ κοινὸν τὸ εἶναι στοιχεῖον ἐκάστου τὸ πρῶτον ἐνυπάρχον ἐκάστῳ.

Now, since what are called genera are universal and indivisible (there being no account of them), some people call the genera 'elements', and these rather than the differentiae, because the genus is more universal. For wherever the differentia is underlying, the genus also follows; but the differentia is not always where the genus is. What is then common to all cases is that the 'element' of every thing is that which is primary and inherent in it.

With this final genus simile the elements are characterized first as ἄλογα, 'unaccountable', 'indefinable', 'unexplainable', simply 'countless', or perhaps 'irrational' in the mathematical sense, which is a synonym of 'incommensurable';¹³ then secondly, in their function of genera, they are characterized as categorial or generific, as if each 'element' were a genarch, something made very explicit in acrostic compositions, where every στοιχεῖον begins and determines a verse or a section of the text. It is in this combined sense that Kahn speaks of 'categorial genera, the final answer to the What-is-it? question for an item within each category'.¹⁴

I have dissected at length the above lines not only because they summarise for the first time in history the various meanings of our concept, but also because they contain much that will eventually inform every discussion on the topic across cultures and centuries. And because of this, they will be of use to us as a touchstone when moving forward through the more general and specialised literature.

Übersetzung und Anmerkungen, Texte und Untersuchungen 162 (Berlin: Walter de Gruyter, 2007), 73, from the Midrash Tanhuma Yelammedenu.

¹³. Famously in a letter simile in Theaetetus 202b3, τὰ μὲν στοιχεῖα ἄλογα καὶ ἄγνωστα εἶναι, αἰσθητά δὲ, 'the στοιχεῖα are not rational or knowable, but they are perceptible.'

First Glimmerings

If we step back from Aristotle now, to examine the origins of the passage just analyzed, two strands are immediately discernible, 1) the word στοιχείον itself, and 2) the concept which eventually would be *par excellence* expressed by this term. These two strands of enquiry have to do with the etymology and the semantics.

**Etymology**

The first occurrence of a related root in Greek literature comes from *Iliad* 23, where in verses 358 and 757 the chariot racers are said to stand μεταστοιχί, explained by the scholiast as ἐπὶ στοῖχον, ἐπὶ τάξιν, ‘in a row’, ‘in order’. One of the main aims of Burkert’s article was precisely to ‘establish the root στοῖχος conclusively, through the widest possible sampling, as the semantic origin of στοιχείον.” This characteristic of the στοιχεία is often mentioned in the grammatical literature, but it is not made quite explicit in the *Metaphysics* definition: they are *sequential*, gradual in the sense of Lat. *gradus*, a step, related to στείχω, to walk, and to στίχος, a line of verse, or a line in general.

The first ever use of the word itself seems to come from a third-hand report by Plutarch of the cosmology of the obscure Petron of Himera, who posited the existence of 183 worlds (κόσμοι) arranged in the form of a triangle, with one at each vertex and sixty along each side, which are said to be next to each other and to κατὰ στοιχείαν ἅπτεσθαι—which we could gloss as ‘to cohere in orderly fashion’, ‘like an ABC’. A French translation gives ‘ils se touchent les uns les autres par leurs éléments fondamentaux.’

The reference to this extraordinary cosmology appears twice in Plutarch’s dialogue. Initially one of the characters presents it and adds: ἅπτεσθαι δὲ τοὺς ἐφεξῆς ἀλλήλων ἄτρέμα περιιόντας ἀτρέμα ἐν χορείᾳ, ‘they hang on to each other in a row, going round in circles, gently, as in a dance,’ but a few lines down, the narrator, presumably Plutarch, comments that he himself does not know what to make of the κατὰ στοιχείαν ἅπτεσθαι. Now, János Balázs, who makes a strong case for the musical-rhythmical

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19. At 422b3 and later 422d7.
origin of στοιχεῖον, points out how Petron’s 183 worlds are ‘contiguous in a choric
dance with one another.’ Balázs also points out that ‘the verb στείχω meant not going
in general, but procession in well-ordered ranks,’ and he establishes associations with
the Greek appreciation of dance as the all-encompassing artistic form. Perhaps we
should further specify and instead of simply considering the elements to be ‘gradual’,
we might say they are choreutic, or even dancey. A similar usage in a cosmological
context is found in Sch. to De divinis nom. 256,22, «ἀλληλουχίαι δὲ τῶν ὁμοστοίχων»
eἰσίν αἱ τοῦ κόσμου κατατάξεις ἐκ μᾶς οὐσίας τῆς ὕλης εἰς σώματα πληθυνθέσαι
στερεωμάτων καὶ οἴονει σειρά ἀλλήλων ἐχόμενα, the ‘interconnections of those who
have the same element’ are the orders of the universe, which from one essence are
multiplied into solid bodies of the matter, and which hold to each other ‘like links
of a chain.’ Even further on the musical aspect, in later Greek alchemical literature,
Stephanus of Byzantium would describe how ‘Orpheus made melody with rhythmical
sounds so that the symphony should re-echo the co-ordinated movement of the
elements,’ where the elements are called ὁμοταγεῖς οὐσίαι, the ‘co-ordinated essences.’

In any case, eschewing Petron as a dubiously dated testimony, if we are looking
for a completely certain earliest testimony to the use of the word, we must also
dismiss Anaximander and other pre-Socratic authors whose ipsissima verba are
not preserved, and acknowledge that στοιχεῖον first occurs in Aristophanes’s
Ecclesiazusae (651), ὅταν ᾖ δεκάπου τὸ στοιχεῖον, ‘when the shadow of the gnomon
is ten feet long.’ And thus we can see how the earliest certain recorded meaning of
στοιχεῖον has to do with gnomonics, referring to the shadow cast on the sundial, and
by extension to the module of its advance. This powerful image combines different
meanings contained in the etymology: it is a walking shadow-line, and it walks in
circles, determining events as it progresses.

1951), 28 (hereafter cited as DK).
21. Balázs, ‘The forerunners,’ 233. This article seems to have escaped the notice of Burkert and others.
See also, along similar lines, the more recent Laspia, ‘L’excursus fonologico del Teeteto,’ 204.
22. Ioannis Scythopolitani prologus et scholia in Dionysii Areopagitae librum ‘De divinis nominibus’ cum
additamentis interpretum aliorum, vol. 4,1, Patristische Texte und Studien 62, ed. by B.R. Suchla (De
Gruyter, 2011), 236; in spite of some common ‘sociological’ readings, the medieval commentaries agree
in giving to ὁμόστοιχος here a physical sense.
126–27.
stoicheion, les citations probables des Présocratiques, elles, l’ignorent.’
The Concept

As regards the concept itself, it is well known that it was Empedocles who, following the Pythagorean predilection for the holy Tetractys, introduced the quaternary of the elements, calling them the ‘roots of all things,’ ῥιζώματα τῶν πάντων. He thus invented what would become the prevailing concept of ‘element’, without employing the name which would eventually be used for it, στοιχεῖα. He characterizes them as ‘primordial and jointly originating,’ πρῶθ’ ἥλικά τ’ ἀρχήν, hence also the primal elements [Urelemente], from which are compounded the four visible elements of the current world order. Πρῶθ’ ἥλικά τ’ ἀρχήν could be alternatively rendered ‘primordial and contemporary in origin,’ to reveal an interesting new property of the elements: they are coeval, all coming to be at the same ‘time’, without question of precedence among them.

Another important basic quality of the elements made explicit above, recalling also the shadow of the gnomon, is their ‘halfway’ ontological status, being intermediary between the transcendent and the material.

Not even the atomists had decided on a term for their corpuscles, ‘calling them alternatively εἴδεα, σχήματα, ἰδέαι, φύσεις, ναστά, ἄτομα, among others’. Perhaps the most important gain from reading Diels’s work is to realize that the word στοιχεῖον was originally not limited to the meaning of physical constituents of matter, but that there was, in the words of Burnet, the ambiguity of the term “element.” The examples abound, and this is for instance why texts would appear like the Pseudo-Plutarch Τίνι διαφέρει ἀρχή καὶ στοιχεῖα, What is the Difference between ἀρχή and στοιχεῖα?

Atoms and Letters

The comparison to letters, if not a straightforward identification, seems to be a very early feature of the concept of στοιχεῖα in their ‘atomic’ aspect, as naturale simplex

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31. *Placita philosophorum* 875C, 4. Note the plural of στοιχεῖα in contrast to the singular of ἀρχή.
corpus. Recent analysis of some of Heraclitus’ fragments, and recent approaches to some of the aspects of Democritean atomism, make very possible a hitherto unexplored continuity of this image at the very onset of the Greek philosophical tradition, including a very conscious usage by Plato of an imagery which was already part of the common heritage.

Platonic Corpus

It was already affirmed in ancient times that ‘no one before Plato had used the term στοιχεῖον to refer to the physical principles’. The classical reference is attributed to Eudemus and the present context warrants a good reading of it:

Plátων τά τε τῶν Πυθαγορείων καὶ τῶν Ἐλεατικῶν ἐπί το σαφέστερον προσαγαγόν τά τε ύπερ τήν φύσιν εξύμνησεν ἄξιως κάν τοῖς φυσικοῖς καὶ γενητοῖς τάς στοιχείω- δεις ἄρχας τόν ἄλλων διέκρινε καὶ στοι- χεία πρώτος αὐτάς ὄνόμασε τάς τοιαύτας ἄρχας.

Clarifying greatly the doctrines of Pythagoreans and Eleatics, Plato composed worthy ‘hymns’ about the preternatural. He discerned the elementary principles in what is manifested and natural, and he was the first to call those principles ‘elements’.

The expression στοιχειώδεις ἄρχας is noteworthy: ‘those principles which are like στοιχεία.’ According to this, clearly enough, the στοιχεῖα would be one species within the genus ‘principles.’ Unfortunately, the Platonic corpus does not really warrant such a clear distinction. In fact, when comparing the rather motley use of στοιχεῖα across the Platonic corpus against the wealth of pre-Socratic metaphysical speculation, it seems more appropriate not to insist too much on any sort of a programmatic intention on the part of Plato, but rather to assent to the laborious conclusions of Crowley, ‘The core sense of stoicheion, then, is that of a basic part of a whole,’ and in particular to the work by Thérèse-Anne Druart, who has devoted two meticulous articles to the ‘Platonic stoicheiology’ and the matter of the letter-simile, Diels’ Buchstabengleichnis.

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35. Diels, Elementum, 17.
37. Ibid., 392.
Her conclusions run along similar lines: ‘la valeur paradigmaticque de la « comparaison des lettres » a été source, elle aussi, d’une extension de la problématique par un dépassement du cadre proprement linguistique.’\textsuperscript{39} And in her earlier article devoted to \textit{Theaetetus}, ‘Le passage incessant de composant matériel à constituant explicatif, nous révélerait alors que, par les stoicheïa, Platon entend, tend plus exactement à élaborer une notion de constituant, de \textit{principe explicatif interne}.’\textsuperscript{40}

Whatever the case, Plato’s impact, which is reflected not only in Aristotle’s definition above, but also in his own flexibility regarding the term,\textsuperscript{41} opened the field for very broad subsequent developments. One case in point is Euclid, who came to be dubbed \textit{ὁ στοιχειωτής}\textsuperscript{42} and whose influence is prominent in later Neo-Platonic literature, both in mathematical and arithmological speculations.

\textbf{The Constellations}

Another major semantic development of the term, perhaps partly influenced by early Christian literature, and mostly by the lasting impact of the New Testament,\textsuperscript{43} is the astronomical meaning of constellation, whence zodiacal sign and eventually the astrological concept of ruler of a sign.\textsuperscript{44} Variously conceived as ‘elemental spirits,’ or ‘cosmic spirits’ worshipped ‘by Jews and Gentiles,’ they had a bad connotation which according to Diels is ultimately at the origin of the late medieval and modern Greek \textit{στοιχείο} for a demon, genie, ghost or bugbear.\textsuperscript{45}

All this rich context makes it all the more impressive that the term became eventually so important in grammatical treatises, as I shall discuss in the next section. All the pre-Socratic doctrines and all the Platonic syntheses and the Aristotelian treatments of \textit{στοιχεῖα} were bound to inform, even if indirectly, all succeeding scholarly appropriations of the term. Let us then step back somehow, or aside into the grammatical tradition, but not before a brief excursus to mention the Latin lexical and philosophical correspondences which I have hitherto left unmentioned.

41. See Crowley, ‘On the Use of Stoicheion,’ 370ff.
43. See \textit{ibid.}, 50ff.
44. See Manetho, \textit{Apotelesmatica}, 4, 624, οὐρανίων ἄστρων στοιχεῖα, D. L. 6, 102, τὰ δώδεκα στοιχεῖα, and cf. also ‘Lexikon zur byzantinischen Gräziität,’ s.v. στοιχειωματικός, ‘belonging to the horoscope.’
Latin Correspondences

The word *elementum* appears in Lucretius⁴⁶ and then in Cicero⁴⁷ with the two meanings of letter and element that *στοιχείον* had already developed in the Greek world by that time. It is a matter of debate how ontological or simply rhetorical Lucretius’ usage of the letter image was,⁴⁸ but Cicero was one of the translator of *Timaeus*, and *elementum* appeared in other later authors partaking of the contemporary debates in Greek philosophy, which included Stoic atomistic and Middle Academy developments.⁴⁹ Interestingly, these first attestations show ready-made the identification between *στοιχείον* and ἄτομος, the ‘physical’ meaning which was never articulated as such in pre-Socratic literature in spite of being conceptually there. Examples from Horace, Ovid, Quintilian and other later grammarians abound. For Boethius (*De institutione arithmetica*, 2,48), the interval of fourth, being the basis of harmony, can be considered virtually an *elementum*.

Regarding the etymology of *elementum*, in spite of some elaborate, and at times very curious, hypotheses by Diels,⁵⁰ Sittig,⁵¹ and others,⁵² Burkert appears to be right in considering it a clear case of undecidability.⁵³

Greek Grammarians

It might be said without exaggerating that the Greek grammatical tradition is all in one way or another related to Dionysius Thrax’s *Τέχνη γραμματική* or *Ars grammatica*.⁵⁴ According to Uhlig, the editor of the still standard Teubner edition, ‘no other book in the entire world of profane literature has been preserved of such a great impact, not only because this *techne* is the ancestor of all the grammars authored in Europe, but also because there is hardly any of them in which the traces of the original are totally

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⁴⁶. ‘Five times in the first two books of the *De rerum natura* the arrangement of atoms in an object is compared to the arrangement of letters in a word’; see A. Dalzell, ‘Language and atomic theory in Lucretius,’ *Hermathena*, no. 143 (1987): 19.
⁴⁸. See especially the reference to Friedländer in Dalzell, ‘Language and atomic theory in Lucretius,’ 28n.
⁴⁹. ‘Nothmals lat. *elementum*.’
It must be noted that this appraisal is written very nearly two thousand years after the appearance of the treatise, and that it does not mention the definitive and lasting impact on Byzantine scholarship.

The Τέχνη is traditionally attributed to Dionysius (fl. 100 BC), a pupil of Aristarchus of Samothrace. If the attribution is to be trusted, this little vademecum would be the only Hellenistic grammatical treatise to survive to our times, but Dionysius’ authorship has been doubted and discussed since antiquity; some scholars maintain that the entire treatise is a compilation of the third or fourth century AD, others defend its complete authenticity, dating it to the end of the second century BC, and a third group of scholars argue for a middle position, allowing for some portions of the book to go back to Dionysius.

Dionysius’ Τέχνη, ‘in essence a descriptive taxonomy of classical Greek phonology and morphology,’ is divided into twenty sections. Section 6, Περὶ στοιχείων, comprises forty lines of text, of which only the first five lines concern this enquiry. After them, the text explains the phonetic classification of the letters and the role some letters play on the nominal inflection. My objective in the following pages will be to survey the literature dedicated to these first five lines of section 6, which read:

Περὶ στοιχείων: γράμματα ἔστιν εἰκοσιτέσσαρα ἀπὸ τοῦ α μέχρι τοῦ ω. γράμματα δὲ λέγεται διὰ τὸ γραμμαῖς καὶ ξυσμαῖς τυποῦσθαι· γραψαῖ γάρ τὸ ἔξωσα παρὰ τοῖς παλαιοῖς, ὡς καὶ παρ᾽ Ὅμηρῳ· «Νῦν δὲ μ’ ἐπιγράψας ταρσὸν ποδὸς εὔχεαι αὐτῷ». τὰ δὲ αὐτὰ καὶ στοιχεῖα καλεῖται διὰ τὸ ἔχειν στοῖχον τινα καὶ τάξιν.

On the element—The letters [γράμματα] are twenty-four, from α to ω. They are called γράμματα because they are drawn with lines [γραμμαί] and scratches, since for the ancients drawing was like making scratches, as in the Iliad, ‘Now, having but scratched my ankle with your arrow, you boast vainly.’ These same letters are called ‘elements’ because they have a sort of gradation and order.


58. Dionysius Thrax, Dion. Thrax, 6
This is the basic text. I will now present the relevant scholia and commentaries by topic, drawing mainly from Hilgard’s rich collection, which includes mostly undated material spanning at least ten centuries of exegesis, and making use also of the works by Lallot and Pecorella.

The Opening Anacoluthon

A recurring topic in the scholia is ‘the puzzling anacoluthon’ between the heading Περὶ στοιχείου and the initial words γράμματα ἐστιν...

Ἀπορίαν τινὰ εὐθέως καὶ ζήτησιν ἔχει ἡ ἐπιγραφή, τίνος ἐπεκεν ἐπιγράφας «περὶ στοιχείου» οὐκ ἐπῆγαγε «στοιχεῖον ἐστιν» [...] Ταύτην οὖν τὴν ζήτησιν σὺν θεῷ εισόμεθα.

The heading presents us immediately with an impasse and demands an inquiry: why, after writing «περὶ στοιχείου», did he not follow with «στοιχεῖον ἐστιν»? [...] This is a matter we will only know with God’s help.

It goes without saying that this nomenclature problem is not just a quirk of the author, but an indication of the polysemy of the underlying concept. In any case, a little further down, a solution is offered:

Καὶ ἔστι μὲν εἰπεῖν, ὡς καὶ αὐτὸς μετ’ ὅλιγον ἔρει, ἑπειδή ταῦταν ἔστι στοιχεῖον καὶ γράμμα: φησί γὰρ ὑποκατιών ὁ τεχνικὸς «τὰ δὲ αὐτὰ καὶ στοιχεῖα καλεῖται»—τὸ δὲ ἀληθές, ὅτι στοιχεῖον μὲν ἐστιν ἢ ἐκφώνησις, γράμματα δὲ αἱ εἰκόνες καὶ οἱ χαρακτῆρες. Καὶ χαρακτῆρες μὲν εἰσὶν καὶ ἐκφωνησεῖς δὲ πολλῷ πλείους.

It can be said, as he himself does a little later, that it is because the element and the letter (γράμμα) are the same. Indeed, a few lines below the author says ‘These same are also called elements.’ But the truth is that the element is the phoneme, whereas the letters are the images (eikónes) and characters. And the characters are twenty-four, but the phonemes [’allophones’ in linguistic jargon] are many more.

After this, the scholiast follows with a total count of sixty-six alphabetic sounds (στοιχεῖα), including forty-five vocalic and twenty-one consonantal, which correspond to the twenty-four letters (γράμματα). With this passage, we come across another

59. Scholia in Dionysii Thracis Artem grammaticam, Grammatici Graeci 1.3, ed. by A. Hilgard (Leipzig: B. G. Teubner Verlag, 1901) (hereafter cited as Schol. in Dion. Thrax)—when no details are given, page numbers refer to Hilgard throughout this chapter.
63. p. 32.
fundamental duality of the concept: the στοιχεῖα are not only ‘letter’ and elemental atom, but they are also a sound and a written sign. The fluid alternation between στοιχεῖα and γράμματα came from earlier times and would be persistent; when Aristotle wanted to be unequivocal in speaking about the written signs, he used τὰ γραφόμενα.\(^{64}\)

### Simplicity and Pedagogy

One should know that the names of the letters are indeclinable. Why are they indeclinable? Because they are principles (ἀρχαι), and principles must be simple (ἅπλαί) and homogeneous (ἀποίκιλοι). Or also because like the foundations, they must have to do with what is unalterable. Or maybe they are not declined because then there would be too many hard to grasp new concepts for the children who are just starting to learn.

The fact that they are ‘indeclinable’, reveals another aspect of their being ἀδιαίρετος, but emphasizing their being unchangeable, invariable. Here for the first time in the grammatical literature we encounter the very important ‘constructive’ image found in the Aristotelian definition, the fact of being a ‘component’, ἐξ ὧν σύγκειται. We also find for the first time the association with children that seems to pertain to the στοιχεῖα through the ages and cultures.\(^{65}\) I shall have later occasion to elaborate on this particular facet which is of course not unrelated to the primordiality of the elements.

### The Semitic Origin

The mythical Phoenician origin of the alphabet gives rise to a number of etymological speculations and reveals new aspects of the letters.

The letters are called Phoenician because it was Cadmus, a Phoenician, who brought them over to the Greek. Or maybe, if an ω replaces the diphthong οι, they are called Phoenician because they are phonic (φωνικεία), being ut-

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The variety of the explanations gives an idea of the uneven texture of the genre, but it is not difficult to discern some valuable features. First, there is a notable original Semitic relation. If we assume that there is a Semitic consonantal substrate in the alphabet, and given the nature of the abjads, we may conceivably conceive of an original feature of the στοιχεῖα, prior to the vocalic evolution of the Greek alphabet: they are unvocalised, in what might be expressed as a sort of quiescence.

I would also like to note and retain the curious ‘gilding’ or ‘polishing’ of the mind, which shows the letters as enlightening, and which goes together with the reference to the golden-red phoenix and its well-known solar connotations. In another scholium (p. 312) is found a common saying directly related to this: φῶς νοῦ ἐτυμολογεῖται ἡ φωνή, ‘the word φωνή comes from φῶς νοῦ, the “light of the mind”’. Further down (p. 32), there is a little remarkable variation on the Phoenician label, according to which they were ‘sent down’ by Hermes, thus making the elements Hermetic in a certain way.

Some say that the characters of the elements as we have them were sent down to men by Hermes written on a date [φοίνιξ] leaf, and this is why the letters are called φοινίκεια. It will noted that here the writer equates the letters (γράμματα) with χαρακτήρες τῶν στοιχείων, the graphical traces of the elements/phonemes. The unpredictable identification and contrast with γράμμα, pointing to the phonetic nature of στοιχεία, reinforces the impression of their intermediary nature: like air or breath, they are

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material yet subtle. ‘Sent down’ from heaven is a Greek semantic equivalent of the
Arabic standard term for a ‘revelation’, tanzīl, a ‘descent’, and it highlights here the
divine origin of writing.

Nature-given or Created

A variety of alleged creators of the letters can be found in the commentaries, including
Sisyphus, Prometheus and other usual mythical names, but one of the authors
concludes: οὐκ ὀρθῶς λέγουσιν· καὶ γὰρ ἡ φύσις ἡνίκα ἐδημιουργήσε τὸν ἄνθρωπον,
ἐξαρίσατο αὐτῷ τοιαύτην ἐπιτηδείοτητα, ὥστε τεχνάσασθαι ταύτα τὰ στοιχεῖα, ‘They
are wrong, for Nature, when fashioning mankind, graced them with this ability to
devise the letters.’ And similarly in p. 317, Αἰτίαν δὲ τῆς τάξεως οἶเดν οὐδὲ εἷς· φύσεως
gάρ εἰσίν εὐρήματα, ‘No one knows the origin of this order, for they [the letters] are
Nature’s inventions.’ In some texts (p. 491), presumably of later origin and influenced
by a monotheistic theology, an enigmatic ‘element teacher’ or ‘letterer’, ὁ στοιχειωτής,
is mentioned to explain the arrangement of the letters in the alphabet.

More Etymologies

As in the previous passage, a number of disparate opinions are reported, this time
regarding the etymology of the term:

Λέγεται δὲ στοιχεῖον ἢ παρὰ τὸ στείχω, τὸ ἐν τάξει πορεύομαι, ἢ ἀπὸ τοῦ στοιχοῦ τοῦ σημαίνοντος τὴν τάξιν, ἢ ἀπὸ Στοίχου τινός, Ἀθηναίου γηγενοῦς, εὑρόντος αὐτά, ὡς Πινδαρίων
φησί· σχηματίζεται δὲ παρὰ τοῦ στοιχειοῦ στοιχείον.

Aside from the eponymous suggestion, of which there are many variations, and
which to a certain extent shows how puzzling the origin of the word was perceived to
be, there is the crucial reference to the sequential ‘order’ of the στοῖχος as mentioned
above69 and championed by Burkert. Even more importantly, the meaning of στοῖχος
is made clearer by another etymology.

Number and Order

生产总 δὲ ἐνιοῦ, ἀπὸ τοῦ δὶ αὐτῶν There are some who say [that they are called

69. See p. 28.
because numbers are written with them, for among the ancient, a graduated line was the number. This is why the Sicyonians, when they ordered and numbered themselves in philai, built a temple to Zeus Stoichadeus. Yet others say the word is really στιχεῖον [line], due to their being written in lines [στιχηδὸν], and that the added <ο> makes it στοιχεῖον.

Here is made explicit for the first time the all-important connection between στοιχεῖον and number. The formulation, based on the step-by-step linear order of a στοῖχος, looks from our modern understanding of arithmetic like a clear reference to the number line of the positive integers, hence the natural reference to a rank of soldiers. There is also in this image a neat analogy with the sundial etymology we had encountered before, and it also makes it easy to develop similar comparisons with astronomical movements in their regular progress through the graduated spheres. It should also be related to the association with Pythagoras through the geometrical shaping of the characters, and to discussions about the number of the elements which we shall soon find in the scholia. Also, when related to the phonetic nature of the στοιχεῖα, we have here the idea of ordered sound which becomes utterance, ‘for order is στοῖχος’, as explained in the following fragment:

Some say στοιχεῖον is modelled on στοῖχος, because they believe that the voice (φωνή) becomes an utterance (ἐκφώνησις) thanks to its order, for order is στοῖχος.

The image here, which is of capital importance and has a long philosophical history, is that of the division of the acoustic continuum into phonetic units, and in view of the above, it is conceived as a sort of ‘numbering’ of the raw phonetic material of language, in order to create meaning.

70. This is precisely the image found in R. Caballero, ‘El Comentario anónimo al Tetrabiblos de Tolomeo: Edición crítica y traducción castellana de los escolios metodológicos del libro I (in Ptol. Tetr. 1.1.1–1.3.1),’ MHNH (Universidad de Málaga), no. 13 (2013): 225, «Τάξει καὶ δυνάμει.» Τουτέστιν ἀριθμῷ, ‘regarding order and efficacy’, that is, number,’ with a reference to the calculation of the movements of the heavenly bodies.

71. Lagercrantz, Elementum, 5.
Walls and Ramparts

Bringing into focus new facets through more etymologies, some passages in the collection explain in the following way the association of the elements with walls:

Οἱ δὲ παρὰ τὸ τοῖχος τοιχεῖον, καὶ πλεονασμῷ τοῦ <ς> στοιχεῖον· ἐν γὰρ τοῖχος ἔγραφον τὸ πρότερον...

[36, 9] ὥσπερ γὰρ τὸ τεῖχος φυλακή ἐστι καὶ ἀσφάλεια τῶν ἐν τῇ πόλει, οὕτω καὶ τὰ στοιχεῖα φυλακή ἐστι τῶν παλαιῶν πραγμάτων· δι’ αὐτῶν γὰρ ἡμῖν τοῖς μεταγενεστέροις ἐφυλάχθη καὶ ἐν γνώσει ἐγένετο.

Others say the original word is τοῖχος, τοιχεῖον (wall), with an added σ, because at first people wrote on the walls...

Just as a wall is a protection and a reassurance for what is within the city, the letters are a protection for the matters of the ancients, since it is through them that such things have been kept for us the later born, and brought to our knowledge.

This makes the elements have also a protective, defensive, safeguarding aspect, which has to do with the above mention of Zeus Stoichadeus, god of the phylai or of battle ranks, inasmuch as they are considered groups of numbered individuals. Perhaps later on, in the comparative phase of this work, it would be relevant to explore the semantic parallel with the Hebrew YHWH Tzeba’ot, ‘Lord of Hosts’. In the Qur’an, besides the recurring ascription of the ‘armies’ (junūd) of heaven and earth to God, we find mention of the angels ordered in ranks, ṣaffāt (37: 1), cognate to ṣaffāf, a typesetter or composer.

And what about ‘γράμματα’?

The etymology of γράμματα also comes up in another passage which tries to clarify the difference between them and στοιχεία:

οἱ δὲ φασίν, ὅτε μὲν γράφονται, λέγονται γράμματα, ὅτε δὲ ἀναγινώσκονται, λέγονται στοιχεῖα. Καὶ στοιχεία εἰρήται παρὰ τὸ ἔχειν στοιχὸν τινα καὶ τάξιν, γράμματα δὲ διὰ τὸ γραμμαῖς καὶ ἔνεκας

Some say that when written they are called γράμματα, and when read aloud στοιχεία. They are called στοιχεία because they have some sort of rank and order, and γράμματα because they are

72. Cf. Ps. 46: 7; and see below pp. 111, 116, and 193.
73. Cf. the gloss in F. Hamza, trans., Tafsīr al-Jalālayn (Amman: Royal Aal al-Bayt Institute for Islamic Thought, 2016), 37: 1, ‘the angels who range their souls in worship or their wings in the air awaiting their orders.’
The mention of the verb γλάπτω, a form of γλάφω, meaning carving or engraving, introduces the considerations about the crafts related to the production of the letters. As I shall have the occasion to show later, this demiurgic dimension has an important bearing on the cosmogonic role of the alphabet.

As in Aristotle’s definition, there is here again the mention of the geometric diagrams, but this time with Pythagoras involved in the development of the letters’ shapes. Pythagoras is related to the origin and the nature of the στοιχεῖα in many more ways that we will explore in the next chapter.

Attributes of the στοιχεῖα

A recurring topic is that of the attributes or qualities of the individual στοιχεῖα which allow them to be grouped in categories. In the following commentary, four are enumerated, but they can be five or six according to other authors.

Τούτῳ οὖν τῷ στοιχείῳ, τουτέστι τῇ ἐκφώνησίσει, παρέπεται τέσσαρα· χαρακτήρ μέν, ως τρίγωνον σχῆμα ἢ ἡμικύκλιον ἢ στρογγύλον καὶ τὰ ἐξες· ὄνομα δέ, ως τὸ ἄλφα ἢ βῆτα καὶ τὰ λοιπά· τάξις δέ, ως τὰ μὲν προτακτικὰ τῶν φωνηεντων καὶ συμφώνων, τὰ δὲ υποτακτικά. Καὶ τὴν μὲν οὖν ἐκφώνησιν τῶν στοιχείων ἡ φύσις τοῖς ἀνθρώποις ἐξ ἀρχῆς ἐδωρήσατο, ταῦτα δὲ τὰ τέσσαρα, ἢ προερήκαμεν παρεπόμενα τῷ στοιχείῳ, ἀνθρώπων ἐστὶν ἐφεύρεσίσι· διὸ καὶ παρ’ ἦμιν μὲν οἱ χαρακτήρες τῶν στοιχείων τοιοῦτοι τινὲς εἰσίν, οὐς ἐδιδάχθημεν, παρὰ δὲ

This element, that is the phoneme [ἐκφώνησις]], has four attributes. First, the character, that is, a shape like a triangle or a semicircle or a curve and so on. Then, the name, like alpha or beta, etc. Third, the pronunciation, such as long, short, aspirated, unaspirated, vocal, consonant, etc. And finally, the order, by virtue of which some vowels and consonants come first while others follow. Now, the phonetic individuality itself of the elements was a gift of nature to mankind from the beginning, but the four attributes are human inventions, and this is why the characters are such as we have learnt them,
Πέρσαις ἕτεροι, παρὰ Σύροις δὲ ἄλλοι, καὶ but they are different by the Persians, παρ᾽ ἄλλοις ἔθνεσιν ἄλλοι.75 and other by the Syrians, and yet others among other peoples.

Here the στοιχεῖον is identified to ἐκφώνησις, which the context makes a kind of Nature-given 'phonetic individuality', and to it are added the humanly invented, or rather conventional, attributes, one graphic, χαρακτήρ, one acoustic, δύναμις, one numerical, τάξις, and one conceptual, ὄνομα—all relative, depending on cultural variations. According to this distinction, the στοιχεῖον is clearly and essentially a phonemic unit: a discrete acoustic linguistical unit. The final lines also make clear that while there is an ethnic, cultural level of the letters, there is also a deeper level in which they are cosmopolitan, perceived as native wherever they are found.76

Such attributes as the above allow for the elements to be grouped among themselves, just as sounds can be vowels or consonants, and as letters can be round or square, etc. This means that the letter-elements too are classifiable, something strikingly apparent in the comparison between the periodical table of chemical elements and the consonant table of the International Phonetic Alphabet. To exemplify the analogy, it can be said, for instance, that a voiced alveolar fricative is the same anywhere in the world, regardless of it being called zed, zayin or za, or being written z, צ or צ.76

### The Four Cosmic Elements

The issue of the correspondence between the letters and the physical elements, or put otherwise, of the physical reality of the letter-elements, can be approached from different angles, which are all represented in the grammatical commentaries. The first

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75. p. 31.

Someone might say that they are called στοιχεία because of their imitation of the four elements, fire, water, air, earth. Just as all things in the universe are composed of these four elements and are sustained by them, every word and every piece of writing and every book is composed by the twenty-four letters and is sustained by them.

I will reserve for next chapter a more detailed reference to the topic of the μίμησις, ‘existential imitation’ or ‘representation’, which appears here for the first time and is central to this thesis, but it is important to clarify my reading of that relation here. Examining the structure of the sentence and the two verbs used, it is the second one that draws my attention: the things of the world, like books and words, are sustained in the hypostasis of the στοιχεία, that is, literally, ‘they are/exist in the hypostasis of the στοιχεία.’ I interpret this as ‘on the hypostasis,’ meaning that the element-letters are viewed as a supporting underlying ‘material’ on which the world, be it physical or linguistic, rests. The στοιχεία are here quite literally the infrastructure, whereas reality would be the superstructure.

Why Twenty-Four? More Cosmic Correspondences

The correspondence just mentioned is found above all in astronomical observations and knowledge, and in the Scholia Marciana (p. 196), we find for the first time the recurring motif of the correspondence with the hours of day and night, which is another echo of the early gnomonic meaning of στοιχεία:

Κδ’ λέγουσιν αὐτὰ εἶναι κατὰ μίμησιν τῶν κδ’ ὡρῶν τοῦ νυχθημέρου.

They are said to be twenty-four because they represent the twenty-four hours of day and night.

And more specifically: τὰ φωνήεντα τὴν ἡμέραν μιμοῦνται, τὰ δὲ σύμφωνα τὴν νύκτα, ‘the vowels represent the day, and the consonants the night.’

The letters are limited in number, which is related to their being integral. Their number can vary greatly depending on the historic stage of the alphabet, whether we count final letters and those used only for arithmetic purposes, like the sampi, or

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77. See below p. 69.
78. Schol. in Dion. Thrax, 323.
whether we count phonemes or only the written signs... but whatever the choices, they are numerable, forming a countable set. This reminds of an interesting observation made by Burkert:79 ‘one letter alone is nothing without its relation to the other letters, to the alphabetic system.’ And he notes how what is found mostly in relevant discussions is the plural στοιχεία, which would be the equivalent of using an expression for the whole set, viz. ἄλφαβητος, abecedarium, or our usual ABC. Indeed, as will become clearer in the following pages, the subject of this thesis is above all that plural concept in its integrality, and only secondarily its inner properties, classification, and architecture.

The Moon and the Stars

Following on the astronomical correspondences, the Scholia Londinensia (p. 491) present an interesting association of the twenty-four γράμματα with the moon in particular, which reminds us of the Arabic association of the twenty-eight letters with the lunar mansions. The passage is lengthy and at times puzzling too, but well worth quoting.

Οὐκ ἀλόγως δὲ τούτῳ τῷ ἀριθμῷ οἱ παλαιοὶ ἐχρήσαντο· ἀλλ’ ἀπὸ τῶν νυκτὸς καὶ ἡμέρας ὡρῶν μετέθεσαν αὐτὰ ἐπὶ τὴν τῶν στοιχείων τάξιν, διὰ τὸ τὴν δύναμιν τῶν στοιχείων πάνω τῷ σεληνιακῷ εὐκέναι δρόμῳ, φωτιζούσαν τε τὰ πράγματα καὶ φωτιζομένην ὑπ’ αὐτῶν, καὶ οὕσαν σχήμα τοῦ δρόμου τῆς σελήνης, ὅπερ μὲν αὔξανομένης ὁτὲ δὲ μειομένης διὰ τῆς οἰκείας δυνάμεως· καὶ πανσέληνον μὲν μιμεῖται διὰ τῆς τῶν φωνηέντων φύσεως, διχότομον δὲ διὰ τῶν ἡμιφώνων, ἀμφίκυρτον δὲ διὰ τῆς τῶν ἀφώνων τοῦ φθόγγου μειώσεως.

Thus, as their lunar correspondence is revealed, their number is shown to be determined by it. And then this association with the moon takes an even more unexpected and practical turn:

Εἶτα ὡσπερ αἱ Θεσσαλαί, φασί, γοητεύουσαι διά τῶν μαγγανειῶν βούλονται κατάγειν τὴν σελήνην, οὕτω καὶ ἡ γραμ- It is not without reason that the ancients used this number, but they did so by transposing them [γράμματα] from the hours of the night and day, and following the order of the letters [στοιχεία], because the power of the phonemes resembles greatly the course of the moon, shedding light on our matters and being illuminated by them, and having the disposition of the path of the moon, as it waxes and wanes by virtue of its own power. Indeed, the full moon is represented by the nature of the vowels, the half-moon by the semi-vowels, and the gibbous moon by the weakness in the utterance of the mute ones.

79. Burkert, ἘΤΟΙΧΕΙΟΝ, 169.
leads the speech from the air into our mind through magic, and then brings it out again; watching over and holding down her own types [τύποι], she is ensnared by the revolution of the number twenty-four along the variation of the letters [γράμματα].

The letters are perceived as magical or perhaps rather alchemical in the psycholinguistic operation they perform, the ‘alchemy of meaning’ of which they are raw materials: the transformation of simple sounds in semantic aggregates. It is no wonder that some kind of magic comes up, since we touch here on the aporetic matter of the origin of language qua mental process. But I shall refrain from entering now into these deep linguistic waters, to return instead to the heavens where wider associations are at play.

The Planets

Just as the seven planets in heaven have the sovereignty in the administration of the observable motions, never leaving the zodiac signs, but remaining always above them and revolving as they go through the visible heaven, thus do the vowels have the sovereignty of the written speech, as they are given shape and are combined with the consonants without ever transgressing the characters of the twenty-four letters, but rather by always being among them and through them, they bring into being the ever recurring wholeness of the written speech, nor do the voice or the letters move ahead of one another in order to accomplish this. Just as neither night nor day need anything aside from the twenty-four hours for their revolution, but rather complete
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ποιεῖται τῆς οἰκείας περιφορᾶς. Καὶ τὰ μὲν γράμματα διὰ τοῦτο καὶ οὕτω πως περάσματος καὶ ἀριθμοῦ ὡρισμένου τετύχηκεν.

If the letters as a whole had been compared to the moon in their general function, now they are, in their specifics, compared to the planets and the zodiac as they interact with each other. This remarkable simile, where the travelling vowels go through the twenty-four divisions of the sphere, immediately reminds one of the Arabic term for vocalisation marks, *harakāt*, meaning ‘movements’. It also brings up the question of the status of vowels in their relation to consonants: in the Greek language, for the first time, the vowels acquired the status of letters which they never had in the Semitic abjads. And yet, in this very Hellenistic exegesis, the vowels are clearly considered of a different class altogether. This question is that of two different conceptions of what an alphabet is: either a homogeneous or a hybrid series.

Astrological Correspondences

To complete the previous passage on the planetary relations, here are the correspondences of the seven vowels:

Kαὶ τὶ δῆποτε ὁ τεχνικὸς τῶν φωνηέντων τὸν ἀριθμὸν μέχρι τοῦ ἑπτὰ ὁρίζεται; Καὶ φαμεν ὅτι ἴσα αὐτὰ τῷ ἀριθμῷ τῶν χορδῶν τῆς λύρας τοῦ Ἀπόλλωνος ἐποίησεν, ἢ κατὰ μίμησιν τῶν ἑπτά ἀστέρων τῶν πλανήτων τοῦ οὐρανοῦ· πλάνητες γάρ εἰσιν ἑπτά, Κρόνος, Ζεύς, Ἄρης, Ἡλιος, Ἀφροδίτη, Ἕρμης καὶ Σελήνη. Τεύτα γὰρ τά φωνηέντα τοῖς πλάνησιν ἀνάκεινται· καὶ τὸ μὲν «α» φασὶ τῇ Ἁρμοδίτη ἀνακείσθαι, τὸ δὲ «ε» τῷ Ἕρμῃ, τὸ δὲ «η» τῇ Ἀφροδίτῃ, τὸ δὲ «ι» τῷ Διί, τὸ δὲ «ο» τῷ Αρει, τὸ δὲ «υ» τῷ Διί, τὸ δὲ «ω» τῷ Κρόνῳ.

As found elsewhere, here we have another demiurgic name, ὁ τεχνικὸς, the Craftsman, who assigns cosmical correspondences, and once again speaks of a heavenly or principial nature of the letters or some kind of ‘arch letters’. The image of Apollo,
and of the lyre devised by Hermes and given to his brother as an endearing gift, is anything but casual and emphasizes and clarifies the connection between music, language and heavenly order. Harking back to the previous paragraphs, it is important to keep in mind that we are still here, simultaneously, on both levels, the psychological and the astronomical, in ‘a realm of patterned relations inconceivably manifold and yet bearing a recognizable affinity to the rich and systematic organization of language, including au fond mathematics and music.’

Microcosmic Correspondences

A natural consequence of the macrocosmic correspondences of the letters is that there will also have to be a direct correspondence with the parts of the human compound:

τὰ μὲν φωνήεντα τῇ ψυχῇ ἐοίκασι, τὰ δὲ σύμφωνα τῷ σώματι· καὶ ὡσπερ ἡ ψυχή, εἰ καὶ χωρίς τοῦ σώματος δύναται εἶναι, ἀλλὰ δείται τοῦ σώματος εἰς τὸ ἀποτελέσαι τὴν σύστασιν τοῦ ζώου, τὸν αὐτὸν τρόπον καὶ τὰ φωνήεντα, εἰ καὶ καθ’ ἑαυτὰ δύνανται παραλαμβάνεσθαι καὶ ἀφ’ ἑαυτῶν ἐκφωνεῖσθαι, ἀλλὰ δέονται τῆς τῶν συμφώνων συντάξεως εἰς τὸ ἀποτελέσαι τὴν ἐγγράμματον φωνήν.

The vowels resemble the soul, and the consonants the body. Just as the soul, even though it can exist outside the body, needs the body to produce the compound of life, just so the vowels, even though they can be used and uttered on their own, need the addition of the consonants in order to produce the written speech.

And more fundamentally in the Collectio Marciana (p. 317):

Ποσαχῶς τὸ στοιχεῖον; Τριχῶς· στοιχεῖον ἡ ἐκφώνησις, στοιχεῖον ὁ χαρακτήρ, στοιχεῖον καὶ τὸ ὄνομα. Καὶ διὰ τί λέγεται τριχῶς; Διότι καὶ τῷ ἀνθρώπῳ τρία παρέπεται, τὰ τῆς ψυχῆς, τὰ τοῦ σώματος καὶ τὰ τῶν ἐκτός·

In how many ways do we use ‘element’? — In three: the pronunciation is an ‘element’, the character is an ‘element’, and the name [of each letter?] is also an ‘element’. And why do we have these three uses? — Because man also has threefold attributes: those of the soul, those of the body and those of the external.

This is the basis of a kind of letter melothesia which evolved over the centuries into countless applications in what was effectively a common ground of astrology, medicine and magic.

85. p.198.
86. See Dornseiff, Alphabet, 81n.
Graphical Layout

The layout of the lines and the direction of writing are yet another aspect of the letters discussed in the scholia:

Τῶν ἀρχαίων οἱ μὲν βουστροφηδὸν ἔγραφον, οἱ δὲ κιονηδόν, οἱ δὲ πλινθηδόν, οἱ δὲ σπειρηδόν.

Some of the primordial people wrote as the oxen go, some vertically as in columns, others as if forming a rectangle and yet others in zigzag lines.

There had been mention before of the shapes and the proportions of the letters, but this catalogue of possibilities makes me wonder about an architecture among the elements, a geometry established by their inter-relations. And we may surmise that the elements, having to do by definition with ranks and order, are bound to certain kinds of order and disposition. Could we say they are geometric, or perhaps even somehow stereometric, having three-dimensional volume? It will be seen that this is, with a slightly different emphasis, an aspect of the same organicity already listed above (p. 26) as one of the properties of the elements. In fact, these layout variations should be considered in the light of the prevailing layout of the classical inscriptions, the stoichedon grid, which would influence the development of Hebrew square script and that, as shown by its name, has a direct relation to the kind of order implicit in the word στοιχεῖον, the battle ranks mentioned above.

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87. Detail of the ‘Decree of Kallias’, now at the Louvre.
Sanchuniathon and the Snakes

One last Greek grammatical passage worthy of close attention comes from Eusebius and has to do with the mythical Phoenician figure of Sanchuniathon and the celestial origin of the letters:

... θεὸς Τάαυτος μιμησάμενος τὸν οὐρανόν τῶν θεῶν ὄψεις, Κρόνου τε καὶ Δαγῶνος καὶ τῶν λουπῶν, διετύπωσε τοὺς ἱεροὺς στοιχείων χαρακτῆρας.

... having assimilated the sky, the images of the gods, of Kronos and Dagon and the others, the divine Taautos [identified with the Egyptian Thoth] impressed through [διετύπωσε—or shaped, cast, stamped, modelled] the sacred characters of the element-letters.

We had come across the root of τύπος, an impression or print, as one among the means of reproducing letters, but this is the first time that we find it clearly elevated to a ‘divine’ function, which is certainly not unrelated to the concept of the arch-type or archetype, the principial mould, which we shall discuss at a later stage. Thoth ‘prints’ or rather, less anachronistically, ‘stamps’ the letters after the celestial divine pattern. Τύπος denotes most stages of the printing procedure: from the mould or model to the pattern and the final impression itself.

Further down there is another mention of Taautos and more details about his creation of the letters:

Ὁ δ’ αὐτὸς πάλιν περὶ τῶν Φοινίκων στοιχείων ἐκ τῶν Σαγχουνιάθων ἐκ τῶν Σαγχουνιάθων ἐκ τῶν Σαγχουνιάθων μεταβαλὼν, θέα ὁποία φησι περὶ τῶν ἐρπυστικῶν καὶ ἰοβόλων θηρίων, ἀ δὴ χρήσιν μὲν ἀγαθὴν ἀνθρώποις οὐδὲν συντελεῖ, φθορὰ δὲ καὶ λύμην, οἷς ἄν τὸν δυσαλθῆ καὶ χαλεπὸν ἰὸν ἐγχρίμ-ψειν, ἀπεργάζεται.

He in turn, succeeding Sanchuniathon with regard to the Phoenician letters, brings them to completion divine, as he says they are, fashioned after venomous reptiles, such as will not be of any use or benefit to mankind, but rather for destruction and corruption, for those whom he approaches with this deadly and cruel poison.

There is here an obvious reference to the harsh critique of writing recounted in Plato’s Phaedrus, when Thoth brings to Egypt the dubious gift of the written word—writing is deadly as poison. But there is also an important association with the snakes,

88. Eusebius of Caesarea, Praeparationis evangelicae libri XV, ed. Friedrich Adolph Heinichen (Sergiana Libraria, 1842), 45.
89. See A Greek-English Lexikon, ed. H. Liddell and R. Scott (Oxford: Oxford University Press, 1968), s.v. τύπος (hereafter cited as LSJ); cf. also below p. 120.
90. Eusebius, Praeparatio, 48.
in the immediate visual symbolism of their moving and gliding lines, like the lines of writing do with certain materials, and also in the traditional mythical symbolism of their telluric force, as a furtive dynamic power from the earth.

With these passages I shall add two new properties to the elements: they are of divine origin, which was already confirmed by their being ‘Hermetic’ and their descent from heaven (see p. 37); and they can also be lethal, harmful, deleterious, or in any case sharing in a ‘slippery’ or crafty nature, remarkably close again to the attributes of Hermes.

Latin Grammarians

In order to avoid needlessly burdening this first chapter, I have consigned the bulk of my Latin citations for this chapter to Appendix A, where the interested reader can find them with a translation in parallel columns.

During the course of this chapter I have already made a few references to the Latin grammatical tradition and to the concept of elementum when appropriate. In the following lines I will only add a few more particulars that stand out from the specialised literature and may complement the information on some of the topics brought up in the previous pages.

♦

The Romans had a rich and ancient tradition of grammatical studies, and it is remarkable how, in spite of the great influence that Greek scholarship had on the development of its Roman equivalents, and even though the discipline itself preserved for the most part its Greek name, the Latin grammatical tradition never ceased to exhibit traits of its own. It is remarkable how the Latin artes tend to follow a different order of exposition, as if the foundations were conceived in a different way, but there was in Latin grammars a customary initial section devoted to phonetics, the ‘phonetic complex’, consisting of two consecutive chapters dedicated respectively to vox (as

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91. Quotations are mostly from Keil’s collection of Latin grammarians, H. Keil, ed., Grammatici latini, reprint of the 1855–80 Leipzig edn, 8 vols (Hildesheim: Georg Olms, 1961) (hereafter cited as GLK); and other Latin grammatical sources. A most valuable online repository is Corpus Córporum: repositorum operum Latinorum apud universitatem Turicensem, ed. P. Roelli, Developed by the Institute for Greek and Latin Philology, University of Zurich (Zurich, November 13, 2015).


translation of φωνή) and to litterae⁹⁴ (as translation of both στοιχεῖα and γράμματα—note the plural),⁹⁵ and these sections are comparable to the section ‘On the στοιχεῖον’ found in the Τέχνη of Dionysius.

The pair στοιχεῖον–γράμμα did not find an exact parallel in the Latin pair of elementum–littera, but littera dominated as the broader term which designated both a graphical sign and the minimal unit of articulate speech.⁹⁶ As in the Greek tradition, this ever unclear definition of the στοιχεῖον/littera has a bearing on modern linguistic discussion about the concept of phoneme, and as a liminal entity existing between orality and writing, it brings into modern discourse the awareness of an inclusive perspective that works at ease with the ambiguity.⁹⁷

As in the Greek grammarians, the metaphysical or logical meaning of, in this case, elementum, is mingled with the properly grammatical. It is common to find the grammatical teachings in the form of a dialogue:

Grammaticae artis initia a voce orientur, quae elementis constat. Elementum quid est? Unius cuiusque rei initium, a quo sumitur incrementum et in quod resolvitur.

The beginnings of the art of grammar originate from the sound, which is formed of elements. And what is an element? The beginning of any single thing, from which it grows and into which it is resolved.⁹⁸

The common doctrine of the litterae included the following assumptions: a ‘letter’ is a minimal phono-graphic unit (elementum) of ‘writable utterance’ (vox litterata); the concept of ‘letter’, as with the Greek alphabet, entails distinctions by ‘properties’. In this grammatical model, every level of discourse is ‘resolved’ or ‘broken up’ (solvitur) into the parts of the level immediately below it, and all discourse is ultimately resolvable into ‘letters’, the ‘elements’ or ‘atoms’ of writing.⁹⁹ Or in the words of Sergius (c. 450):¹⁰⁰

Omnis oratio soluatur in uerba, uerba denuo soluantur in syllabas, rursum syllabae soluantur in litteras, littera sola non habet quo soluatur. Ideo a philosophis atomos dicitur.

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⁹⁴. The single or double ᵵ of litera/littera had to do with the history of the word and its etymology, and ended up being a matter of personal or local preference; see L. Buzássyová, ‘The ‘Phonetic Complex’ in Renaissance Latin Grammar Petrus Ramus’s Dichotomies and Their Reflections in Two Vernacular Grammatical Texts,’ Graeco-Latina Brunensia (Bratislava) 21, no. 2 (2016): 82n.
⁹⁵. Ibid., 82.
⁹⁶. Ibid.
⁹⁸. Audacis de Scauri et Palladii libros excerpta (Keil VII).
¹⁰⁰. GLK, 4, 475.
Every sentence is resolved in words; words resolve in syllables; syllables resolve in letters, but the letter alone has nothing to resolve into. This is why it is called atomos by the philosophers.

And also on this physical note Priscian\textsuperscript{101} gives the Latin equivalent of the cosmological association with the elements.

\begin{quote}
literas autem etiam elementorum vocabulo nuncupaverunt ad similitudinem mundi elementorum […] litera igitur est nota elementi […] abusive tamen et elementa pro literis et literae pro elementis vocantur. They called the letters with the name of the elements because of their resemblance to the elements of the cosmos […] The letter is the sign [nota] of the element […] It is a misuse when they call the elements letters and the letters elements.
\end{quote}

Even though elementum had been used with a physical meaning from the time of Lucretius, this awareness and its consequences do not appear in the Latin grammatical literature in the same way that it did among the Greek scholars. Even though several of the properties I have noted for the Greek στοιχεῖα are also found among Latin grammarians, like the divine origin of writing, there is one of them which is remarkably absent, and it is the relation to number and the great emphasis given to their harmonious order. This arithmetical dimension of the Latin script, or rather the lack of it, will be one of the topics treated in the next chapter, dedicated to number.

Conclusion

By way of conclusion I would simply like to bring together all the different properties or attributes of the στοιχεῖα which have been labelled through the previous pages, in order to have a more compact vision of where we stand before continuing with the research.

According to the notes above, and although several of these are rather tentative, I would now say that the στοιχεῖα/elementa are, in turns or simultaneously, and in no particular order:

1. constitutive
2. primordial
3. cosmogonic
4. causal
5. immanent
6. simple
7. ambiguous
8. corporeal
9. generative
10. axiomatic
11. organic
12. integral

\textsuperscript{101} Institutionum Grammaticarum (Keil vol. II).
| 13. minuscule | 21. intermediary | 29. cosmopolitan |
| 14. pervasive | 22. unchangeable | 30. classifiable |
| 15. operative | 23. unvocalised | 31. numerable |
| 16. indefinable | 24. enlightening | 32. lunar |
| 17. genarchic | 25. solar | 33. divine |
| 18. sequential | 26. Hermetic | 34. deleterious |
| 19. dancey | 27. ordered |  |
| 20. coeval | 28. safeguarding |  |

They generate and destroy, they dance and do not change, they define and are indefinable, they protect and help, they enlighten and are minuscule, the are the real atoms, requiring one another, everywhere, subtle and yet corporeal, Hermetic... With such a list of attributes at hand, it should not be too difficult to identify semantic analogues of these cosmic ‘letters’, and I feel equipped to embark on the next phase of this research, but first, in the next chapter, I plan to complete the definition of the object of research, and at the same time to establish a time frame based on the definition itself, by completing the picture of the στοιχεῖα with their numerical association.
Chapter 2

On the Tracks of Arithmetical Cosmology

In the previous chapter we found a definition of ‘number’, ἀριθμός, among the grammarians’ attempts at defining the στοιχεῖον, and the association they established is with order as στοῖχος, a ‘row’ or a ‘queue’, and as τάξις, an ‘array’. They go as far as saying that the name of the στοιχεῖα is due to the fact that numbers are written with them, as if στοιχεῖα meant something like ‘arithmeticals’, or, indeed, ‘numerals’.

In order to elucidate the relation between the elemental letters and the numbers, my first step will be to address the relation between numbers and letters in general, and then to clarify the meaning of ἀριθμός in the Greek tradition.

Number and Letter

‘Numbers seek form in words and in signs.’ In this statement by Menninger, numbers are set apart as entities whose meaning is not exhausted by either their names or their written expression. In the Greek language, for instance, τριάκοντα, ‘thirty’, means etymologically ‘three times ten’, but for the greater part of the history of the language, down to the late Middle Ages, it was written as λ, which does not reflect in any way

1. See above p. 39.
4. The details of this history, including the earlier acrophonic numeral system and other less common developments are found in S. Chrisomalis, Numerical Notation: A Comparative History (Cambridge University Press, 2010). See also Menninger.
the composition of the number as expressed in τριάκοντα or, for example, as in the very clear Roman XXX, or as in our ‘30’. While the basic number-words are patterned on the structure of the human body,\(^5\) and while they tend to parallel the arithmetical efficiency of the abacus array, numerals can exhibit a bewildering variety of expression.\(^6\) This lack of correspondence between number-words and numerals *tout court*, or ‘lexical numeral words’ and ‘graphic numerical notation’\(^7\) (*Zahlwort* or *Zahlsprache* and *Ziffer* or *Zahlschrift*, in the useful German terms) can be easily ascertained again and again, until we recognise that numerals are far from being mere representations of number words, but that they exist as a parallel, and often only partially interdependent, system for notating numbers.

The sequence of number words in a language often predates and outlasts any given system of numerals as they may become established and replaced. We may instinctively think that numerals are simply ‘copies’ of number words, that there is a ‘linguistic fit’ of numerals,\(^8\) but the rules that govern their syntax and usage do not in fact correspond to the rules of the number-word sequence, which usually follow calculation logic and stepwise gradation.\(^9\)

Now, in the context of this work, observing this relation comparatively in Greek and Latin languages, we can appreciate a striking paradox of cultural history in that the Romans, who possessed such a subtly and precisely ordered lexical number sequence, used a system of numerals so cumbersome that it is hard to see how it could be a product of the same culture.\(^10\)

This paradoxical disjunction throws some light on the essential alterity of numbers, but from the point of view of this research it brings into focus, above all, the contrast between Greek and Roman numerals, and the fact that letters in Latin were never really equivalent to numerals; the Latin alphabet was never fully alphanumeric as the Greek was for so many centuries, and this is one reason why it figures only marginally in these pages.

Alphabetical numerical notation appears among the Greeks in the sixth century BC

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7. Chrisomalis, ‘Re-evaluating Merit,’ 5, attributes it ultimately to the ‘difference between visual-graphic and oral-aural modalities.’
9. Some linguists argue that, in fact, what numeral systems do is to reflect, even more transparently than other parts of language, the very same principles of ordering that underpin human linguistic and mathematical capacities; see J. Gvozdanović, ‘Remarks on Numeral Systems,’ in *Indo-European Numerals* (Berlin and New York: Mouton de Gruyter, 1992), 8.
with what is called the Milesian numeral system. This system, based on the Phoenician alphabet’s substrate,\(^{11}\) was adapted from the Egyptian demotic numeral system, also based on three enneads or groups of nine letters for each decimal order,\(^{12}\) as in the illustration below; it was adopted into Hebrew, Syriac and other languages, and expanded greatly between the fourth and seventh centuries AD, including its adoption into Arabic, until around the twelfth century, when the letters started being replaced by the Indo-Arabic positional numerals.\(^{13}\) Alphabetic systems are still used today only in limited contexts such as liturgical texts, numbered lists, and divinatory magic, and in Greek itself, the letters are still used like numbers in the way we use Roman numerals in English.

\[
\begin{array}{cccccccccccc}
\alpha & \beta & \gamma & \delta & \epsilon & \zeta & \eta & \theta \\
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
\iota & \kappa & \lambda & \mu & \nu & \xi & \omicron & \pi & \rho \\
10 & 20 & 30 & 40 & 50 & 60 & 70 & 80 & 90 \\
\rho & \sigma & \tau & \upsilon & \phi & \chi & \psi & \omega & \chi \\
100 & 200 & 300 & 400 & 500 & 600 & 700 & 800 & 900 \\
\end{array}
\]

CLASSICAL GREEK ALPHANUMERIC CORRESPONDENCES\(^{14}\)

The Greek Milesian system is precisely the initial object of study of this thesis and what could be called a fully alphabetic writing system, that is, a system were the same set of alphabetic signs is used both for everyday language and for mathematics. This and the other replicate alphanumeric systems were remarkably and unexplainably long-lived. They were regularly used for more than a thousand years across linguistic families (Indo-European, Semitic, Kartvelian, like Georgian) and religions.

In cases such as the Greek system, this might be partially explained by the political importance of the system’s users, but this is hardly the case of smaller communities, like Armenian and Ethiopian; that they continued to use alphabetic numerals requires explanation. Chrisomalis suggests that alphabetic numerical notation systems, as the scripts they are, are conveyors of cultural identity.\(^{15}\) There is no question that such

\(^{11}\) The Ionic alphabet, the one Panhellenic script from the fourth century BC ‘until the Byzantine reform that established the minuscule script almost 1,300 years later, in the ninth century AD’; Psychoyos, ‘The Forgotten Art of Isopsephy,’ 159.


\(^{13}\) For the centuries-long process of adoption, see Chrisomalis, Numerical Notation, 123, 221, and Psychoyos, ‘The Forgotten Art of Isopsephy,’ 199ff. About the end of their generalised usage, see refs below, p. 251.

\(^{14}\) The units in the first line are called the πυθμενες or bases of the counting system. Cf. Egyptian demotic and Greek tables in Chrisomalis, Numerical Notation, 55, 139.

\(^{15}\) Ibid., 185–7.
persistence requires explanation and that it cannot be simply attributed to political causes. Perhaps, though, it is easier to find an answer by comparing it to the following statement by Menninger: ‘In essence, letters are the embodiment of words, not of numbers.’¹⁶ In this statement is embedded a conceptual limitation that is clearly revealed when contrasted with a truly alphanumerical understanding of the system.

Let us recall our previous chapter on the many dimensions of the στοιχεῖα from a ‘grammatical’ point of view, which did include basic qualities like the order of the alphabet, shared cosmological correspondences, references to the shapes of letters, and the following kind of exegesis: προτέτακται δὲ τὸ «α» ὅτι σημεῖόν ἐστι τῆς μονάδος, ἀρχὴ δὲ πρώτη ἀριθμοῦ ἡ μονάς—‘the alpha goes first because it is a sign of the unit, and the unit is the first principle of number.’¹⁷

In the light of such identifications, we could at least suspect that what Menninger’s assertion does is point to an essential limitation of our contemporary concept of letter (or shall I say ‘phoneme’? or ‘element’?). We are so used to having separate notations for sounds and numbers that it does take an effort at estrangement or defamiliarization (the French dépaysement), to allow for an enlargement of our concept. In any case, here we are brought to a subtle distinction: as we paraphrase and affirm that ‘in essence, Greek letters are the embodiment of sounds,’ we have to wonder, ‘how like the other sounds, the other words of a given language, are numbers? How special are numbers within language? Zahlwort and Zahlsprache—do they differ much from the ordinary Wort and Sprache?’ We must remember that letters too have in Greek, as in Semitic languages, special names which are not just onomatopoeic: alpha, beta, gamma..., and perhaps they are comparable in their status to the names of numbers. Psychoyos is quite right to point out that to speak of an Ionic writing system and a Milesian numeral system as separate constructs misses the mark. These two systems were one united system for its users, who lived naturally between the phonetic and the arithmetical values of its signs. And indeed, grammar and linguistics may not be ‘the best guides for one to study the emergence and evolution of the alphabet and other scripts. This should take place in the context of a wider semiotics of writing,’¹⁸ which is precisely one of the possible ways to describe my approach to this topic in the following pages.

I shall return later to these questions that pertain to the heart of my enquiry, but before moving on, I need to turn the attention to a historically important phenomenon, isopsephism or systematic alphanumerical equivalence, which is and will be necessarily in the background throughout this chapter, if not throughout the entire research.

¹⁷. Dionysius Thrax, Dion. Thrax, 381, 485.
Isopsephism, Onomatomancy and Gematria

A scarcely attested term, ἰσόψηφος, synonym with the equally infrequent ἰσάριθμος, means literally ‘pebble-equal’, thus going back to the etymology of ‘calculation’, and it is applied to words in which the values of letters added together make up the same sum, like NOMΟΣ (law) = ΑΡΙΘΜΟΣ (number) = 430, ΔΙΟΣ (of Zeus) = ΘΕΟΣ (deity) = 284; naturally anagrams will share the same value, like ΚΡΑΤΟΣ (strength) = ΑΡΚΤΟΣ (a bear) = 691. A famous example reported by Suetonius (Nero 39, 2) is an indictment of the matricidal emperor,

Νέρων ἰδίαν μητέρα ἀπέκτεινε.

NERO = he slew his own mother.

where both sides of the equality total 1005.

What takes place fundamentally in isopsephic practice is a ratification. The post-classical Latin verb, ratificare, ‘to confirm,approve’, has its precedent in the classical ratum facere, which means to make something ‘fixed by calculation’, i.e. confirmed as if by calculation, made unalterable, ‘settled’ in the very same sense that accounts are settled. The numerical calculation, as it were, endows meaning with the mathematical accuracy of the movement of the stars, which are rati.

Such ἰσόψηφα, found in coins, sculptures, paintings and poems are at the basis of ὀνοματομαντεία, a divination through names, or rather a divination of names, whereby concepts are explained through numerical identity. The point, though, is not ‘to find a coincidental equivalence between words. It means that there is a direct relationship between these words,’ recalling ‘the meaning of “symbol” in the ancient world—objects that participated in and made present the person or object they symbolized.’ Hippolytus (Haer. 4.13) gives a detailed explanation of the procedure

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19. See LSJ.


25. For some epigraphic examples and others in the Anthologia Palatina, see LSJ, l.c.

26. See Kroll, ‘Onomatomanteia.’


used, and he speaks of the practice as a ‘Pythagorean reckoning’ (Πυθαγορείος ψήφος) heeded by ‘those who invent a serious philosophy’ δι’ ἀριθμῶν καὶ στοιχείων, ‘through numbers and letters’, who believe they can ‘prophesy by means of reckonings and numbers, letters and names’ (διά ψήφων τε καὶ ἀριθμῶν, στοιχείων τε καὶ ὀνομάτων μαντεύεσθαι—4.14), and also that they can ‘discern life’ (τὸ ζῆν διακρίνειν—4.15).²⁹ It is remarkable that from the earliest datable mention of this practice in Greek literature (Iamblichus, VP 18, 147) there is an association with Pythagoras.³⁰

Now, in order to see why and how ἰσοψηφία is relevant to our research, we need to steer clear of two distractions: 1) magical, oneiromantic and related occult literature, which has been for centuries the prolific and enthusiastic field of application of this technique; and 2) a facile superficial explanation of what is at work in the alphanumeric identity—or rather the ‘alphanumeric equality’. Bücheler remarks how such were found everywhere and he calls the ἰσόψηφα Spielereien, ‘amusements, play’, and there is certainly a ludic dimension to them, which would partly explain why gematria has been called the ‘spice of the Torah’,³¹ but like all traditional games, they were rooted in a cosmological worldview, in the symbolic correspondence mentioned above, and were thus considered a means of acquiring knowledge, usually knowledge transmitted upon initiation.³²

This practice continued well into the Christianised Hellenic world, where entire isopsephic hymns³³ were not uncommon.³⁴ The most famous example of isopsephy in general is undoubtedly the ‘Number of the Beast’ mentioned in Rev. 13:18, which was ‘calculated’ in various ways over the centuries.³⁵

In any case, from our contemporary perspective, this technique of calculating the numerical values of words has inevitable esoteric and mystical connotations, partly due to the advent of a different system and the rupture of the alphanumeric connection, but mostly due to the prominence it acquired among Jewish and Muslim scholars, as נלמסה gimatriyah, derived from a Greek word, and in the Islamic world as حساب الجمل hisāb al-jummal, the ‘reckoning of the total’, and particularly among schools and individuals related to Kabbalists and Sufis, who would influence countless developments in the

²⁹. Regarding the use of these techniques by astrologers (mathematici), and other relevant references, see A. García Molinos, ‘Tipología de la adivinación en los papiros griegos mágicos’ (PhD diss., Facultad de Filosofía y Letras, Universidad de Valladolid, 2014), 206.
³⁰. Dornseiff, Alphabet, 93.
³¹. Locks, The Spice of Torah.
³². See Luz, Technopaignia, 325.
³³. Ibid., 292.
³⁴. Kalvesmaki has written extensively on this Christian aspect.
³⁵. Cf. Menninger, Zahlwort und Ziffer, II, 72 and, for a later occurrence, Victorinus Petavionensis, Commentarii in Apocalypsin (Corpus Córporum, University of Zurich), 119, 3.
fields of magic, alchemy and other esoteric disciplines. It must not be overlooked, however, that even today, within the Hebrew and Arabic-speaking communities, the practice of numerology (as generally labelled nowadays) retains an immediacy and a matter-of-fact presence that is easy to ignore from a Latin alphabetic worldview. From child-naming to toponyms, medicine and politics, the use of gematria is very alive on the streets of large parts of Africa and Asia.

It would be all too easy to dismiss this survival as mere superstitious impulse, but returning to the open question about the longevity of alphanumeric notation, it may be possible to see a clearer cosmological reason for it. Indeed, if numbers and letters are interchangeable, arithmetic can be seen as an aspect of grammar, and any physical application of arithmetic ‘makes sense’ as a discourse does—numbers ‘say’ something. ‘Medicine, astrology, and numerology were grounded on common assumptions about the relationship between orders of reality, the relation of language to nature, and what is required if one is to have certain knowledge of anything.’ Some pages back I mentioned Chrisomalis’ suggestion of a ‘cultural identity’ reaffirmation as a factor in preserving alphanumeric notation, but it may be more appropriate to consider the possibility of a deeper ‘cultural’ attachment, the attachment, or a natural inclination, to a worldview in which quantities ‘speak’ a human language, and literature can reach ‘mathematical accuracy’. The crucial Greek word that condenses these meanings is of course λόγος, which ‘in its mathematical sense of “relation, ratio, proportion”, has been attributed to the Pythagoreans and to Pythagoras himself [...] The sense “calculation” comes from the basic sense of the root λέγ- almost more directly than the sense “word”.' This inner identity within number has also been seen as an ‘inner polarisation’ of Pythagorean number which ‘connects the quantitative with the qualitative domain’.

Before moving on with my argument, and to illustrate the sometimes baffling complexity of this inner dynamic of the number-letters, I would like to present a

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38. Ibid., 260.


relatively unknown Byzantine grammatical fragment.

**Choeroboscus on the Names of Numbers**

These lines are a good example of the semantic problems posed by the word στοιχεῖον, and they are directly related to the distinction between *Zahlwort* and *Ziffer*, the names of the numbers—or number-nouns—and their notation. Georgius Choeroboscus (*fl. eighth–ninth century AD*) is notable for his extensive use of earlier grammatical treatises and also for the influence of his works on later scholars.⁴¹

πάς ἀριθμὸς ἐντὸς τῶν στοιχείων θέλει ἔχειν στοιχεῖον ἐκ τῶν ἐντὸς τῆς δεκάδος·
Every number wants to have among its ‘letters’ a ‘letter’ from within the Decad.

ὁ εἷς ἀριθμὸς ἔχει τὸ ε, ὅπερ ἐκ τῶν ἐντὸς τῆς δεκάδος ἐστίν·
Number one (εἷς) contains ε, which is within the Decad.

πάλιν ὁ δύο ἔχει τὸ δ, ὅπερ ἐκ τῶν ἐντὸς τῆς δεκάδος ἐστίν·
Number two (δύο) contains δ, which is within the Decad.

πάλιν ὁ τέταρτος ἀριθμὸς ἔχει τὸ ε καὶ τὸ α, ἅτινα ἐκ τῶν ἐντὸς εἰσὶ τῆς δεκάδος·
The fourth number contains ε and α, which are within the Decad.

τὸ δὲ ὀκτὼ δοκεῖ ἀντικεῖσθαι, τοῦτο γὰρ οὐκ ἔχει στοιχεῖον ἐκ τῶν ἐντὸς τῆς δεκάδος·
Now, eight (ὀκτὼ) would seem not to comply, as it does not contain any ‘letter’ from within the Decad.

ἀλλ’ ἔστιν εἰπεῖν ὅτι δυνάμει ἔχει στοιχεῖα ἐκ τῶν ἐντὸς τῆς δεκάδος·
But it is possible to say that it does potentially contain ‘letters’ from within the Decad.

λέγουσι γὰρ οἱ φιλόσοφοι ὅτι παρὰ τὸ ἄγω δύο ἐστίν·
Because the philosophers say that it comes from ‘I add two’ (ἄγω δύο).

τὸ δὲ ἄγω δύο ἔχει στοιχεῖα ἐκ τῶν ἐντὸς τῆς δεκάδος· λέγω δὴ τὸ α καὶ τὸ γ, καὶ τὸ δ·
And ἄγω δύο does indeed comprise ‘letters’ from within the Decad, namely α, γ and δ.

οκτὼ γάρ λέγεται παρά τὸ ἄγειν, δύο γάρ τετράδας ἄγει.

This is because οκτὼ is said to be formed by addition, since it adds together two tetrads. ⁴²

One way of appreciating the subtlety of the semantic play here is to translate in a different way the first line, which is the key to the understanding of the whole passage: ‘Every number-noun wants to have among its elements an element of the Decad.’ We can see that the meaning of ἀριθμός here seems to be Zahlwort. As for στοιχεῖον, here it means ‘letter’ first, in ἐντὸς τῶν στοιχείων, ‘among its letters’, but then we have στοιχεῖον ἐκ τῶν ἐντὸς τῆς δεκάδος, where στοιχεῖον accords with the meaning of δεκάς, that is both ‘the first ten numbers’ and ‘the first ten letters’. To be able to make sense of the passage, we need to enter for a moment the alphanumeric mentality, and to realise that ‘the decad’ (viz. 10) means ‘from αλφα to ιωτα’ at the same time that it means ‘from one to ten’.

Now, after such a good taste of the intricacies of alphanumeric notation, and thus brought to confront this duality of number which is either identity or inner polarisation, and still wondering at the possible reasons for the longevity of alphanumeric notation, we may embark on a wider examination of the Greek theory of number, hoping also to see more clearly how deep the alphanumeric duality goes.

Reckoning and Science of Numbers

A basic Greek distinction was mentioned by Plato between λογιστικὴ and ἀριθμητικὴ, the ‘art of calculation’ and ‘the science of numbers,’ or ‘the art of reckoning’ and ‘the study of number’, both disciplines sharing the same object of study, ἀριθμός. ⁴³ A locus classicus is Plato’s Respublica 525a9, λογιστική τε καὶ ἀριθμητικὴ περὶ ἀριθμὸν πάσα, ‘reckoning and number theory are both solely concerned with number.’ ⁴⁴ The first one is more properly concerned with what is ἀριθμητὸν, countable or numerable, as explained in a scholium to Charmides 165e2,

λογιστικὴ ἐστι θεωρία τῶν ἀριθμητῶν, οὕτῳ δὲ τῶν ἀριθμῶν μεταχειριστικῆς,
οὐ τὸν ὄντως ἀριθμὸν λαμβάνουσα, ὑποτιθεμένη τὸ μὲν ἐν ὃς μονάδα, τὸ
δὲ ἀριθμητὸν ὡς ἀριθμὸν, οἷον τὰ τρία τριάδα εἶναι καὶ τὰ δέκα δεκάδα.

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44. See also Pol. 259c1ff.
Reckoning is the study of what is countable, and it does not deal with numbers, as it does not use number per se, but rather uses 1 as if it were the Monad, the countable as if it were the number, taking 3 for the Triad and 10 for the Decad. 45

But the perception of this duality of number is considered an achievement in the study of mathematics, and by no means a given or a starting point. Initially, as summed up by Fowler, ‘within the surviving Greek classical mathematical tradition, number (arithmos) always denotes a positive integer.’ 46 At first, following the progression in Resp. 524d, arithmos never appears to mean anything other than ‘a definite number of definite objects’, and yet theoretical arithmetic grows out of it, from the understanding that in the process of ‘counting off’, or ‘reckoning’ any objects, we make use of a prior knowledge of ‘counting-numbers’ which are already in our possession. 47

The conception of ‘pure’ numbers (the object of ἀριθμητική), as opposed to visible or tangible numbers (the working tools of λογιστική), arises out of the natural phenomenon of counting, for ‘it would indeed seem strange if there should be numbers of—nothing. How will he who is involved in “natural” counting and calculating become aware of these monads which are in no way to be touched or seen?’ 48

Klein finds these matters first treated explicitly as fundamental problems within Pythagorean and Platonic philosophy, and the following conceptual shift described: through the continual practice of counting and calculation, and the acquired familiarity with numbers and their operations—what Plato calls ‘arithmetic and logistic art’—we are brought to ponder on those numbers we already possess before we begin counting or calculating, and which must be independent of the particular things which happen to be counted—of what are these the numbers? This question concerns the special nature of the object of arithmetic and logistic as that which alone of all things is in the strict sense knowable, being in fact always to some degree already known, an object which has a purely noetic character and which exhibits at the same time all the essential characteristics of the countable as such. 49

Here we have come across another remarkable analogy between ἀριθμός and στοιχεῖον: they both seem to have a dual character which makes them readily perceptible and yet intangible, even transcendent. The στοιχεῖα are notably sounds, 45. Scholia Platonica, ed. by W.C. Greene (Haverford: American Philological Association, 1938).
46. Fowler, ‘Ratio in Early Greek Mathematics,’ 809.
48. Ibid., 50, 77.
49. Cf. ibid., 49–50. It is most interesting to compare here the Chomsky’s view that what underlies both the human linguistic and arithmetical faculties is the same kind of computational complexity which is equipped to deal with discrete infinities; cited in Gvozdanović, ‘Remarks on Numeral Systems,’ 1.
the phonemes heard and readily understood, practically independent of their graphical notation, which can also be called στοιχεῖα. Now we see that numbers can be either the simple referents of counting or something else of ‘purely noetic character’. Plato himself, through his theory of the arithmoi eidetikoi, ‘eidetic numbers’, remained true to the Pythagorean tradition; indeed, the eidetic numbers might, in their foundational function, be compared to the Pythagorean arithmetical ‘foundations’ or πυθμένες, the coefficients of the powers of ten, as seen above.

Nussbaum confirms, ‘the most general sense of arithmos in ordinary Greek of the fifth century would be that of an ordered plurality of its members, a countable system or its countable parts.’ It may be remembered that τάξις is one of the very basic qualities of the alphabetic series, and that in one of our grammarians we had encountered precisely a very explicit and related association with number, when the Sicyonian soldiers ordered and numbered themselves. The Pythagoreans were renowned for seeing the true grounds of worldly things in their countableness, since the condition of being a κόσμος, a ‘world of beauty’, is primarily determined by the presence of an ordered arrangement (τάξις).

What comes to the fore repeatedly in these reflections and definitions, including the long passages of the Metaphysics devoted to criticise Plato’s ideal numbers, is the reference to the Pythagorean tradition, as when there was mention of the Pythagoreans looking after the shapes of the letters, and of the Pythagorean lineage of isopsephy.

I shall now follow the direction of the references and turn my attention more specifically to Pythagorean number doctrines, particularly in their relation to physics

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50. Known to us from the Aristotelian polemic against it (cf. above all Metaphysics M 6–8), and through later Platonist developments.
51. 99 Klein, Greek Mathematical Thought, 137.
53. See above p. 39.
54. Klein, Greek Mathematical Thought, Cf.
56. Above, p. 39.
57. Above, p. 59.
and metaphysics.

**Pythagoras and Pythagoreanism**

It is becoming something of a truism to speak of an ‘explosion’ of Pythagorean-related scholarly literature, and the field has been transformed so much in the last few decades that, in the words of Huffman, ‘the Pythagoras of current scholarship is not your mother’s let alone your grandmother’s Pythagoras.’ He seemed to be taken for granted, ‘one of the most familiar names among the Greek philosophers, one we are told very much and we know very little about,’ until with the 1962 publication of Burkert’s *Weisheit und Wissenschaft: Studien zu Pythagoras, Philolaos und Platon*, along with von Fritz’s complementary article in the *RE*, this field of studies received a powerful wake-up call to examine anew centuries of basic assumptions which had effectively become obstacles to a distinct vision of Pythagoras and Pythagoreanism. Saito speaks of the ’blow of the epoch-making study’ and ‘dismantling the myth of origins’ of Pythagoreanism. This reexamination keeps its momentum and has been extending its scope into later developments, trying to include everything that came to be labelled as Pythagorean over the centuries. Also, because of the enduring influence


64. See L. Zhmud, ’What is Pythagorean in the pseudo-Pythagorean literature?,’ August 2015.
of all sorts of ‘Pythagorean’ writings on Arabic literature, with ulterior ramifications into Hebrew literature and right into the European Middle Ages, the reassessment of Pythagoreanism is already having a wider impact on many areas of Islamic, Jewish and Medieval studies.\(^6^5\) There is also a somewhat parallel line of Pythagorean scholars who in different degrees argue for a more ‘inclusive’\(^6^6\) view of the ancient and medieval material, and according to whom there is a respectable doctrinal continuity from the obscure origins of the Pythagoras myth down to the medieval Pythagorean apocrypha in various languages and all sorts of contexts.\(^6^7\)

Nowadays, after all the sifting and winnowing, some scholars argue that there is no reliable evidence that Pythagoras was a mathematician, a shaman or anything, yet there is talk of a ‘vague image’ we still feel compelled to flesh out.\(^6^8\) The words of a recent reviewer of Huffman’s anthology appear very apt: ‘we cannot give a sufficient account or express a valuable analysis of Pythagoreanism without dealing with the interpretations and the judgments of ancient and contemporary interpreters. Comprehension of Pythagoreanism, in fact, necessarily passes through the reading of late sources and through the understanding of a constantly renewed interest—differently motivated in different eras—in the figure of Pythagoras and in his doctrines.’\(^6^9\) Cornelli recalls Guthrie’s ‘bottomless pit of research on the Pythagoreans’, steps back somehow and issues what seems to be a balanced overview of the latest research, arguing against an ‘overly presentist view of ancient philosophy’, and explaining why there is no need to ‘choose between an acousmatic and a mathematical Pythagoreanism.’\(^7^0\)

But let us take Burkert as point of departure, and attempt a summary of the current views on ‘Pythagoras the arithmetician’ while availing ourselves of the wealth of recent scholarship.

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\(^6^7\) In addition to some of Zhmud’s works, which remain closer to scholarly consensus, two examples are P. Kingsley, *Ancient Philosophy, Mystery, and Magic: Empedocles and Pythagorean tradition* (Oxford: Oxford University Press, 1995) and A. Uždavinys, *The Golden Chain: An Anthology of Pythagorean and Platonic Philosophy* (Bloomington: World Wisdom, Inc, 2004). Thomas Taylor, ‘the Platonist’ (1758–1835) may also be mentioned as an important precedent of this view.

\(^6^8\) See Huffman, *History*, 4, 24ff.


\(^7^0\) Cornelli, *In Search of Pythagoreanism*, 192, 196.
Lore & Science and Further Developments

The declared primary purpose of this work was to determine, among the variegated mass of the Pythagorean tradition, what can be considered original Pythagorean, and what is either interpretation, be it Platonic, Aristotelian, Neo-Platonic, or addition and attribution by later authors.

Burkert starts by noting how the earliest reliable evidence for Pythagorean literature, and by far the most influential, is, by one of the curious turns of the history of philosophy, found in the Corpus Aristotelicum. Historical passages like the one in Metaphysics A had a decisive role in defining later views, and it is known that there were additionally some writings specifically on the Pythagoreans which were lost. The thrust of the Aristotelian accounts accumulates until a fundamental stumbling block is identified: ultimately ‘the Pythagorean doctrine cannot be expressed in Aristotle’s terminology’ (Burkert, L & S, 45).

Finally, the conclusion is reached that ‘already in the earliest evidence available two conceptions of Pythagorean philosophy are in sharp contrast with each other’ (p. 79):

1. the Aristotelian one, which aside from its own occasional contradictions tends to posit a divide or a clear break between Pythagorean and Platonic doctrines, and

2. the non-Aristotelian, Old Academy one, traced back to Speusippus, which is the older of the two.

This latter one ‘equates Pythagoreanism with the doctrines of the Timaeus and with the Platonic number philosophy: The highest principles, immaterial, are the One and the Indefinite Dyad; from them come the pure, incorporeal numbers; the numbers produce the pure geometrical shapes, line, plane, and solid, as well as the perceptual functions of the “Living Creature Itself”; from the mathematical regularity of the regular polyhedra come the elements and therewith the multifariousness of the empirical world; and this whole process takes place, in this order, only in thought, which traces back changeless Being to its ultimate principles and understands it by means of them’ [my highlighting]. Since ‘this Academy tradition with its “derivation system” must be considered to be actually Old Academy’ (p. 82), when we study the Old and Middle Academy we are actually studying what for centuries has been labelled Pythagoreanism. There is accordingly no need of obscure far-fetched sources or testimonia, since there are no Pythagorean ipsissima verba. We are left reassured that the cosmology of Timaeus and other dialogues where ‘theoretical arithmetic’ is introduced, are very likely the continuation of a real Pythagorean doctrinal thread.

71. Regarding these, and their fragmentary transmission by later authors, see inter alia Horky, Plato and Pythagoreanism, 3.
Now, if we still try to go back to the earliest sources in a quest for the *authentic* Pythagorean texts, the fragments of Philolaus (probably written some time before 400 BC) are especially important as the most likely to convey original Pythagorean contents. They are also of especial interest to us because they treat of number theory and cosmology, while those of Archytas, which are second in likelihood of authenticity, deal more with other topics like acoustics (pp. 22 and 267). In fact, one of the very tangible effects of Burkert’s insights was a renewed interest in Philolaus and Archytas, with several monographic works dedicated to them over the last few decades.\(^\text{72}\)

Before having a closer look at Philolaus, I shall comment on some of the above findings:

- A sort of ‘Pythagorean’ arithmetical genealogy or philosophical lineage appears to be delineated, starting from an undecidable legendary origin with Pythagoras, then first established in the fragments of Philolaus and Archytas, and adopted by Plato, mostly in his *Timaeus*, to be thereafter scattered to the four intellectual winds, as it were, through the later Academy and subsequent Neo-Platonic developments. In all this, Aristotle is the witness *par excellence*.

- The mention of the two highest principles, One and Dyad,\(^\text{73}\) is an opportunity to set further limits to this enquiry: while it seems inescapable that a logical reduction to last principles will yield a binary system,\(^\text{74}\) my current research has boundaries, an ‘alphabetic constraint’, meaning that we need a minimal number of elements which can function in combination as conveyors of human language. This consideration—what is the minimal working alphabet—opens onto a vast and tangential field of studies that is mostly within the ken of system theory, computer science, logic architecture and similar. For a taste of such, the question might be translated as ‘how many symbols do we need for obtaining computational completeness?’\(^\text{75}\) We should not let go unnoticed the interesting connections that suddenly crop up: computing (λογιστική), logic, architecture,

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72. See Huffman, *Philolaus*; and C. Huffman, *Archytas of Tarentum: Pythagorean, Philosopher and Mathematician King* (Cambridge: Cambridge University Press, 2010). There are also more recent chapters on the same two philosophers by D. W. Graham and M. Schofield respectively, in Huffman, *History*.

73. Corresponding to odd/even or limited/unlimited, in other contexts; see below.

74. As Leibniz explained (see G. W. Leibniz, 'Explanation of Binary Arithmetic,' transl. and edited by Lloyd Strickland, 2007) in relating it to the Chinese binary principles of the 64 hexagrams of the *I Ching*.

but we should also not dwell on them. What we thought important to observe is that we shall consciously refrain from discussing further the ultimately basic ‘complete’ system of elements, which would be binary, to stay on the level of what should then be strictly considered an ‘intermediary’ level, where we shall deal with perhaps ten elements (the Decad), or sixteen (the number of letters of the primordial Greek alphabet), or twenty-two, twenty-four or twenty-eight, like the letters of the Hebrew, later Greek and Arabic alphabets.

- The progression from incorporeal numbers to pure geometrical shapes to the elements—and all this only in thought—sets further the scene for the interplay of our alphabetic principles, and we shall keep it in mind for comparison with other sources.

**Imitation or Participation**

‘In the Hippocratic writings the relation between microcosm and macrocosm becomes a matter of “imitation”, but this imitation may be turned either way.’ The body imitates the cosmos and parts of the cosmos imitate human organs. *Imitation is a two-sided correspondence.* ‘Nothing more is meant than the correspondence of cosmos and number, in the sense that one explains and illuminates the other.’⁷⁶ This is compared by Burkert to the very important passage in *Metaph.* 987b which is used as an argument in ‘all attempts to prove a Pythagorean origin of the theory of ideas’:

οἱ μὲν γὰρ Πυθαγόρειοι μιμήσει τὰ ὄντα φασίν εἶναι τῶν ἀριθμῶν, Πλάτων δὲ μεθέξει, τοὔνομα μεταβαλὼν. τὴν μέντοι γε μεθέξειν ἢ τὴν μίμησιν ἢτις ἂν εἰή τῶν εἰδῶν ἀφεῖσαν ἐν κοινῷ ζητεῖν.

Pythagoreans say that things exist by ‘imitation’ of numbers, whereas Plato says that they exist by ‘participation’—merely changing the term. As to what this ‘participation’ or ‘imitation’ of the forms may be, they apparently gave up on the question.

I may recall here those passages in the grammatical survey where the letters are said to relate κατὰ μίμησιν to the four elements, or also to the twenty-four hours of day and night, and more specifically, the seven vowels to the seven planets. The question posed in those cases is the same mentioned by Aristotle: how are we to understand this μίμησις? The enormity of the gap between the two possibilities reported by Aristotle, namely μιμήσει and μεθέξει, has been explored many times,⁷⁷ and the many interpretative possibilities of the simple term μίμησις alone have also given

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rise to countless pages, including notably in the field of aesthetics, for art can be conceived as essentially μίμησις, and the artists as copyists. The original meaning of the word referred to the liturgical actions of the sacrificial priest, i.e. dance, music, song.78 True “imitation” is not a matter of illusory resemblance (ὁμοιότης) but of proportion, true analogy, or adequacy (αὐτὸ τὸ ίσον, i.e., κατ’ ἀναλογίαν);79 the geometric, mathematical connotation is unmissable.

On Creation and Order

‘Pythagoras says that the cosmos is a created thing in the realm of thought but not in that of time (κάτ’ ἐπίνοιαν οὐ κατὰ χρόνον).’80 Aristotle dismisses offhand this Pythagorean doctrine as absurd, but it appears in later literature as Pythagorean, and it agrees with the cosmology of Timaeus, and with the important doxographical statement that Pythagoras coined the term ‘cosmos’, ἐκ τῆς ἐν αὐτῷ τάξεως, ‘because of the order in it.’81

The association of Pythagoras with the henceforth allied concepts of ‘universal orderly beauty’ (κόσμος) and ‘sequential order’ (τάξις), established from early on a sort of conceptual amalgam that would be perpetuated through the Middle Ages. The intemporal and conceptual character of this creation, this universe and this order is to be related to the immaterial aspect of letter and number in their intrinsic duality.

Discussing Philolaus’ theories, Burkert observes: ‘the Greek word ἀριθμός is not completely equivalent to the modern concept of “number”. Ἀριθμός is always a whole number, and tied up with the actual process of counting. Thus it is closely connected with things, and in fact is itself a thing, or at least an ordering of things. Ἀριθμός means a numerically arranged system, or its parts.’82 This is in direct relation to the alphabet and the letters, as I shall have occasion to review in coming pages.

The Pythagorean Logos

The term λόγος, in its mathematical sense of ‘relation, ratio, proportion’, has also been attributed to the Pythagoreans and to Pythagoras himself. Its origin would be in

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80. Aëtius, 2.4.1.
82. Ibid., 265—my highlighting.
musical theory, the numerical ratio in an interval, with obvious parallels in geometry, where the ratios determine angles and shapes. 'Thus the logos would be “the group or bundle of numbers that lie hidden in a thing”, by use of which it can be not only described but reproduced.' It is important to note, as mentioned above, that 'the sense “calculation” comes from the basic sense of the root λέγ- almost more directly than the sense “word”.'

This observation about the original sense of λόγος is very important, and a serious invitation to think twice before routinely translating λόγος as ‘word’. The consequences for the understanding of many ‘doctrines of the λόγος’ are wide and profound. For one remarkable example and by way of experiment, John 1:1 might be rendered: ’In the beginning was the proportion.’

The Fundamental Decad

‘One is νοῦς and οὐσία, two is δόξα... ten is the perfect number, which comprehends the whole nature of number and determines the structure of the cosmos, and with it ends the symbolic interpretation of the numbers.’

This text comes with a reference to Metaph. 986a8, where Aristotle is speaking about οἱ καλούμενοι Πυθαγόρειοι. I quote part of the passage because it is also a fundamental reference for this work:

τὰ τῶν ἀριθμῶν στοιχεία τῶν ὅντων στοιχεία πάντων ὑπέλαβον εἶναι, καὶ τὸν ὅλον οὐρανὸν ἁρμονίαν εἶναι καὶ ἀριθμόν.

they assumed that the elements of numbers are the elements of all things, and the entire heaven to be a harmony or number.

τέλειον ἡ δεκάς εἶναι δοκεῖ καὶ πᾶσαν περιειληφέναι τὴν τῶν ἀριθμῶν φύσιν

the decad is considered to be something perfect and to comprise the whole nature of the numbers.

Finally, in 986a15ff.

φαίνονται δὴ καὶ οὕτοι τὸν ἀριθμὸν νομίζοντες ἀρχήν εἶναι καὶ ώς ὅλην τοῖς οὐσί καὶ ώς πάθη τε καὶ ἔξεις, τοῦ δὲ ἀριθμοῦ στοιχεία τὸ τε ἄρτιον καὶ τὸ περιττόν, τούτων δὲ τὸ μὲν

These thinkers obviously consider number to be a first principle, and like material for things and as constituting their conditions and states. The elements of number are the Even and the Odd; of these the former is
Regarding the decad, Schofield considers the Pythagorean influence on even such an Aristotelian trademark as the ten categories. In view of passages like the above, he observes: ‘if the Categories insists that there are just ten basic categories through which we can articulate reality, the treatise surely must have a pedigree in Pythagorean teaching on number as principle of all things, and on ten as the perfection and completion of the number series.’

Finally, Burkert sums up the Pythagoreans view: ‘Number is not quantity and measurability, but order and correspondence, the articulation of life in rhythmical pattern, and the perspicuous depiction of the whole as the sum of its parts. To see a “consistently quantitative view of the world” in Pythagorean number theory is a mistake.’ This concept of number is certainly closer to a language than to what we know as arithmetic and mathematics.

Philolaos

The extraordinary significance of Philolaus for this thesis is due to the fact, now established by Burkert and Huffman, that the Pythagorean theory described and criticized by Aristotle is in most cases that of Philolaus, and that in fact, we know of no philosophical/scientific, cosmological views of Pythagoreans before those of Philolaus. Cornelli, though adding some temperating comments, concludes that Philolaus’ doctrine is ‘the solution to the problem of attributing a doctrine of “all is number” to ancient Pythagoreanism, in epistemological, ontological and numerological dimensions,’ and even more decisively, that ‘Philolaus can be considered the solution to our problem: ancient Pythagoreanism, or at least fifth-century Pythagoreanism, did hold the doctrine of “all is number”, whether in a mystical or epistemological sense.’

It was through the public philosophical activities of Philolaus that the hitherto

88. For more on this topic in its relation to the abacus, and including the remarkable preservation of certain aspects of ‘medieval number’ in our system of double-entry bookkeeping, see A. Heeffer, ‘On the curious historical coincidence of algebra and double-entry bookkeeping,’ in Foundations of the Formal Sciences VII: bringing together philosophy and sociology of science, vol. 32 (College Publications, 2011), 125.
89. Cornelli, In Search of Pythagoreanism, 184, 187.
‘shadowy’ world of Pythagorean lore emerged into daylight and became part of the Greek philosophical conversation. In this transformation it is likely that Philolaus played the role of inventor of ‘Pythagorean’ philosophy more than of transmitter, and this may be the reason why Aristotle often referred to them in general as οἱ καλούμενοι Πυθαγόρειοι, ‘the so-called Pythagoreans’.⁹⁰

In the following lines I present and comment on those fragments of Philolaus which are relevant to my enquiry into the nature of ἀριθμός. Regarding the authenticity or spuriousness of the fragments, Huffman’s *Philolaus*, cited above, can be considered the current authoritative account.⁹¹ Given that this enquiry is not so much concerned with ‘canonic’ philological Pythagoreanism as with the history and influence of one particular Pythagorean concept, I shall widen the scope to include within my selection some of the spurious or doubtful fragments; after all, they too were for many centuries received and transmitted as veritable Pythagorean teachings, contributing to the Medieval view of ancient philosophy.⁹²

**Fragments of Philolaus**

**Fragment 4** (authentic)

καὶ πάντα γα μᾶν τὰ γιγνωσκόμενα ἄριθμὸν ἔχοντι· οὐ γὰρ οἷόν τε οὐδὲν οὔτε νοηθῆμεν οὔτε γνωσθῆμεν ἄνευ τούτου.

Everything we are perceiving now is with number— for it is not possible that anything at all be understood or known without it.

If, as has been suggested by the specialists, Philolaus is the ‘mathematical’ Pythagorean *par excellence*, then this fragment, along with 11, must surely be at the very basis of the ever popular perception of Pythagoreanism as the doctrine that ‘all is number’, or ‘everything is number,’ as reported and immortalised by Aristotle.⁹³ My translation is an effort to make the most of the crucial ἔχοντι (Attic ἔχουσι), in the sense brought out by Huffman himself but not reflected in his translation of the fragment, ‘the sense of being constituted by an ordered plurality in some sense.’ Our intended meaning for ‘being with number’ instead of the rather vague ‘having’, relies partly on the opposition to ἄνευ, and it is close to that of a woman ‘being with child’, thus close to the Hippocratic example mentioned by Huffman, where lame parents are said to be able

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⁹¹ Latest views in Huffman, *History*, especially chapters 2 and 8.
to produce healthy offspring because 'the lame part has the same number as the healthy part,' with reference to the proper constitution of the body by the four humours.\(^94\)

The other main aspect of the fragment is the epistemological one. We have three words related to cognition, namely γιγνωσκόμενα, νοηθῆμεν, and γνωσθῆμεν (the latter two are passive infinitives). I have brought out the present tense of γιγνωσκόμενα as a deliberate contrast to the gnomic second part of the fragment, for which I keep Huffman’s wording almost intact. Zhmud translates ‘All that is cognizable, certainly has number. For it is impossible for us to think or perceive something without this.’\(^95\) Nussbaum speaks of the ‘close association between numerability and knowability,’\(^96\) and it is along this epistemological line that the fragment is interpreted by most. There is no question of the epistemological import of the text, but it is important to keep in mind, with Viltaniotis, that ‘many examples in Greek thought show that the concept of number refers to something far more complex than an “ordered plurality,”’\(^97\) and that, ‘if it is impossible for a thing to be known without number, this is because it is impossible for a thing to be what it is without number,’ for ‘it is number, along with the basic powers to limit and to be limited, which makes things what they are.’\(^98\) In other words, and quite along the lines of the Latin concept of realitas (from reor, what ‘I think’), here epistemology is ontology.\(^99\)

I would also take note of Viltaniotis’ assertion that ‘number has a precise metaphysical role in Philolaus’ system, and that this role is to be understood in close connection to the role of harmony, the third principle without which it would have been impossible for limiters and unlimiteds to be fitted together.’\(^100\)

This ‘harmonic’ aspect, finally, is related directly to an intersecting area of Pythagoreanism that we shall henceforth encounter repeatedly, that of musical theory, in which the identity between perceptibility and intelligibility—or ‘number’ as substantial structure and ‘number’ as enabler of cognition—mutes the dichotomy by its being ‘heard’; as Hicks observes, the octave is ‘the sense-perceptible manifestation of the ratio 2:1’, and ‘the point is simple: who would deny that the octave sounds consonant?’\(^101\) It is not difficult to surmise, in this light, that probing the depths of

\(^{94}\) Huffman, Philolaus, 175, my italics.
\(^{95}\) Zhmud, ‘“All Is Number”?,’ 275.
\(^{96}\) Nussbaum, Eleatic Conventionalism; 91.
\(^{98}\) ibid., 22, my italics.
\(^{99}\) ibid., 22, my italics.
\(^{100}\) Leaving aside for the moment Semitic parallels, cf. the popular etymology that relates think–thing, or Ger. denken–Ding (e.g. S. Urban [Cave, Edward], ‘English Grammar and English Grammarians,’ The Gentleman’s Magazine (London) 14 (1840): 477), and see Cassin, Dictionary of Untranslatables, 901.
\(^{101}\) A. Hicks, Pythagoras and Pythagoreanism in Late Antiquity and the Middle Ages, chap. 20 in A
the ‘bottomless pit’ may require in the first place a salutary dose of music.

Wer den Dichter will verstehen  
Muss in Dichters Lande gehen.\textsuperscript{102}

\textbf{Fragment 5 (spurious)}

\begin{align*}
\text{ὁ γὰρ μᾶν ἄριθμὸς ἔχει δύο μὲν ἴδια εἴδη,} \\
\text{περισσὸν καὶ ἄρτισον, τρίτον δὲ ἀπ’} \\
\text{άμφωτέρων μειχθέντων ἀρτιοπέριττων} \\
\text{ἐκατέρω δὲ τῷ ἔιδεος πολλαὶ μορφαὶ,} \\
\text{ἀς ἕκαστον αὐτὸ σημαίνει.}
\end{align*}

Number has two distinct forms, odd and even, and a third compounded of both, the even-odd. Each of the two forms has many manifestations which are shown by every separate thing.\textsuperscript{103}

This fragment tells us about the two fundamental types of number and, most importantly, about the central relation between numbers and things. To rephrase and thus elaborate on the text: Every single thing\textsuperscript{105} shows, is a sign of, hints at (σημαίνει), the multiple manifestations or shapes (μορφαὶ) of the two distinct forms, kinds, species (εἴδη) of number. That is, every single thing gives signs of its kinship to either even or odd number, not directly but as if in a second degree, through their manifestations (numbers, perhaps?). The famous Orphic pun reported in Plato’s \textit{Cratylus} (400b9ff.), σῶμα σῆμα, ‘the body is a tomb,’ or also ‘the body is a token,’\textsuperscript{106} can shed some light for us on Philolaus’ meaning here: things are tokens of the varieties of odd and even, bespeaking the latent ‘forms’ as the body reveals the character and movements of the soul, or as a tomb indicates the resting place of a body. Restricting ourselves to the wording of the text, this fragment might be said to speak unequivocally of a \textit{semantic} relation between reality and numbers.

The mention of \textit{Cratylus} is hardly casual, since this dialogue is the prime reference for the discussion of the relation between a system of signs and reality. It is indeed remarkable that no Platonic discussion is found regarding the relation between


\textsuperscript{102} Whoever wishes to understand the poet/ Must go into the poet’s land.  


\textsuperscript{105} This interpretation of ἕκαστον αὐτὸ seems to agree with at least two similar uses we have found in Arist. \textit{SE} 181b13, and Proclus \textit{Theol.Plat.} II, 1, and it would corroborate Huffman’s emendation.

numerical notation and number, and this might be due to the common use of letters as numerical notation.

**Fragment 11 (almost certainly spurious)**

From a philological point of view, as Huffman observes, "There is a great deal both in the style and content of the fragment that links it to the philosophy of the early Academy and the later tradition of Platonism, while virtually nothing that accords with what one would expect from a Presocratic author." This is quite convenient for us as we are interested in tracing the continuity of the doctrines rather than the soundness of the attribution; and indeed there are several doctrinal threads in this long fragment which are worth noting.

The functions and essence of number must be considered in the light of the power inherent in the decad, for it is great, utterly perfect, utterly effective, and it is the joint principle and directing force of divine, celestial, and human life. Without it, everything is undefined, unclear, and indiscernible.

We had already come across passages in praise of the decad, and what we have here might be one of the very first and influential examples of this mysterious veneration. Mysterious because from a strictly mathematical point of view, the decad has no extraordinary features that would warrant such a high esteem. The common current mathematical view is that 'the use of ten as the base goes back to the dawn of civilisation, and is attributed to the fact that we have ten fingers on which to count.'

Now, it may be precisely this kind of cosmic correspondence which is at the basis of the Pythagorean doctrine, not something arithmetically intrinsic to the number ten, but rather the accumulation of perceived correspondences in nature and, thinking of Aristotle’s categories, also in the synthetic power found in decadic configurations. The epistemological importance attributed to number in the previous fragment, is here particularised to the number ten, and emphasised in the following paragraphs.

In relation to this aspect, fr. 20b gives an oft-repeated etymology of the decad: ‘δεχάδα προσηγόρευσεν, ως δεκτικήν τοῦ ἀπείρου’—he [Philolaus] called it a 'receiver',

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108. See *Philolaus*, 349.
109. Twelve letters missing here.
111. Not in DK; see Huffman, *Philolaus*, 352.
because it is receptive of the unlimited.

The originating nature of number is conducive to knowledge, it is orientating and instructing of whatever be unsolvable or unknown. Indeed, if there were not number and its essence, nothing whatsoever would be clear to anyone, either on its own or in its relation to other things. As it is, by adapting in the soul all things to perception, number makes things known and commensurate to one another according to the nature of the criterion (γνώμων), while it joins and cleanly splits the ratios of things, of the unlimited and the limiting.

There is in this paragraph a remarkable doctrine of knowledge through a harmonization between the human mind and external reality, and the harmonization is effected by what in this case sounds like a cosmic principle of equilibrium, the γνώμων. This gnomon means originally the style, or perpendicular, of a sundial, but its meaning expanded in early Greek science to signify any ‘marker around which the intelligibility of other things is constituted.’ The reader will remember that the very first recorded occurrence of στοιχεῖον in Greek literature has to do with the sundial, and that its meaning there is ‘the shadow cast by the dial to mark time.’ I had suggested the symbolic implications of this image, and this is what De Groot confirms, even though apparently unaware of the στοιχεῖον connection, in his interpretation of this passage: ‘It is interesting that the gnômôn is not the sign; the shadow is... Gnomôn, the word, functions in much the same way that Aristotle uses the word archê. Gnomôn does not separate thought and thing. It brings them closer together.’

112. For the interpretation of φύσις as a dynamic whole of origin, process and result, see Viltanioti, ‘Powers,’ 26.
115. Above, p. 29.
116. De Groot, Aristotle’s Empiricism, 347. There is a remarkable analogy with the cosmic role of the Islamic balance, al-mīzān, which I shall address in later chapters.
καὶ θείους πράγμασι τὰν τῷ ἀριθμῷ φύσιν καὶ τὰν δύναμιν ἱσχύουσαν, ἀλλὰ καὶ ἐν τοῖς ἀνθρωπικοῖς ἔργοις καὶ λόγοις πάσι παντά καὶ κατὰ τὰς δημιουργίας τὰς τεχνικὰς πάσας καὶ κατὰ τὰν μουσικάν.

This determining role played by number in practical creative activities such as the ‘arts and crafts,’¹¹⁷ is in this context a clear extension of the demiurgic and artistic nature of the cosmos itself, ‘harmonised’ as it is with the powers of the soul.

ψεῦδος δὲ οὐδὲν δέχεται ἁ τῶ ἀριθμῶ φύσις οὐδὲ ἁρμονία· οὐ γὰρ οἰκεῖον αὐτοῖς ἐστι. τὰς τῷ ἀπείρῳ καὶ ἀνο- ἦτο καὶ ἀλόγω φύσιος τῷ ψεῦδος καὶ ὁ φθόνος ἐστι. ψεῦδος δὲ οὐδαμῶς ἐς ἀρι- θμὸν ἐπιπνεῖ· πολέμιον γὰρ καὶ ἐχθρὸν τοῖς φύσει τῷ ψεῦδος, ἀ δ᾿ ἀλήθεια οἰ- κείον καὶ σύμφυτον τοῖς τῷ ἀριθμῷ γε- νεάι.

Apart from the specification and repetition of the power of number in its different applications, the relation with veracity is noteworthy, and indeed related to the idea of the gnomon as a criterion and enabler of true knowledge. ‘Number’ and truth are kindred, oikeión καὶ σύμφυτον, connatural to each other, while number and falsehood are enemies.

Fragment 23 (spurious)¹¹⁸

ἀριθμὸν εἶναι τὴς τῶν κοσμικῶν αἰω- νίας διαμονῆς κρατιστοῦσαν καὶ αὐ- τογενὴς συνοχήν.

Alternatively, ‘number is the conquering and self-subsisting cohesion of the eternal stay of things...’¹¹⁹ The commanding or compelling nature of number is once again mentioned here, making of it a sort of universal power. Viltaniotis speaks in this connection (fr. 11) of ‘a power of connecting (κοινωνοῦσα), fitting together or combining (ἁρμόζων, συνάπτων), which is also the function of ἁρμονία.’¹²⁰

No falsehood is admitted by the originating nature of number or by concord (ἁρμονία), for it is alien to them. Falsehood and envy belong to what is unlimited, unintelligible, and absurd. Falsehood can in no way foster number, which is by its originating nature contrary and inimical to falsehood, while truth is akin and cognate to the lineage of number.

Number is the controlling and self-generating bond of the eternal continuity of the universe.

¹¹⁷. This seems an apt translation for δημιουργία καὶ μουσική.
¹¹⁸. Huffman, Philolaus, 355.
It is unclear what Philolaus had in mind with his limiters and unlimiteds: some suggest limiters are atoms, unlimiteds void, in a parallel to atomic theory; others take them as Aristotelian form and matter, respectively; or limiters could be odd numbers, and unlimiteds even numbers.¹²¹ Perhaps they might be said to correspond to letters and numbers, and drawing a parallel we would think of letters as related to form, conveying meaning, while numbers would correspond to matter, ‘fleshing out’ the forms. Or maybe the distinction is the one between γράμματα and στοιχεῖα, letters and phonemes: letters, written, fixed, would be the limiters, while sounds, ungraspable, would be the unlimiteds. This is not unrelated to the famous passage about letters in *Philebus* (18b6ff.), where Plato seems to be drawing from Philolaus, and where the invention of letters out of the acoustic continuum by Theuth is an example of a science in which by ‘having number,’ that is, consisting of an ordered set of elements (στοιχεῖα, ‘members of a series’), ‘a subject matter can be learned and its elements applied to explain or manipulate the world.’¹²²

Other fragments of Philolaus speak of the importance of the monad or the dyad, or number seven, but I shall retain the above selection for our purposes, and consider that in Philolaus we have had contact with the motherlode of ‘arithmetic’ Pythagoreanism. From here onwards I shall not dwell on the details of the transmission through the ‘early Academy and the later tradition of Platonism,’ as mentioned above by Huffman, but concentrate on particularly relevant examples, either because they deal with significant aspects of number theory or because they have been historically influential.

‘Pythagorean’ Milestones

In order to trace down the centuries the idea that the intelligibility of the world depends on number, or even that in some way number sustains, rules or constitutes the order of the universe as we know it, and if we are based on the current hypothesis that Philolaus is the earliest representative of such view, the task ahead is to establish, however tentatively, the transmission line, or lines, of this number cosmology.

Let us take as point of departure and at the same time as chart, an illustration from a twelfth-century copy of Boethius’ *Fundamentals of Music*,¹²³ where appear depicted, as

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¹²¹ See Graham, ‘Philolaus,’ 52.


¹²³ Cambridge University Library Ms. ii.3.12, fol. 61v.
the great milestones in the study of music: Boethius and Pythagoras in the upper half, and Plato and Nicomachus in the lower half.¹²⁴

The image captions read as follows:

1– **BOETIUS.** *Consul et eximiae scrutator philosophiae. Ut videat vocum discrimina per monochordum. Iudicat aure sonum percurrens indice nervum.*

Boethius. Companion and student of the excellent philosophy. In order to observe the differences between sounds with the aid of the monochord, he slides his finger along the string and tells the note by ear.

2– **Pythagoras physicus physiceque latentis amicus. Pondera discernit trutinans et dissona spernit. Pulsans aera probat quota quaeque proportio constat.**

Pythagoras, cosmologist and lover of hidden cosmology. He discerns the weights with the balance and discards the dissonant ones. By striking the bells he assesses the quantity and quality of the proportion.

3– **Edocet ipsorum summus Plato philosophorum quomodo disparium paritas sonat una sonorum.**

¹²⁴ See Hicks, ‘Pythagoras and Pythagoreanism,’ 428.
Plato, the greatest of philosophers themselves, is teaching in what way is achieved a consonance of disparate sounds.

4– *Obviat instanti ratione Nicomachus illi.*

Nicomachus confronts him with a pressing argument.

The iconological analysis is not without interest, but I shall look at it primarily as a testimony to the association established, over a thousand years after Pythagoras’ lifetime, between these figures of the history of philosophy, viewed here in their capacity of masters of music, a very Pythagorean concern and one of the branches of mathematics. In fact, the monochord played in the image by Boethius is one of the basic components of, and thus a direct link with, the earliest layers of Pythagorean legend—the Master himself is said to have discovered with its aid the numerical correspondences of musical intervals.

The manuscript comes from Canterbury, which had associations with the School of Chartres just at the time when knowledge was being received from Byzantium and the doctrines of Plato’s *Timaeus* were circulating in Calculidius’ translation. The relation between Pythagoras and Plato, and in particular his *Timaeus,* ‘the single most seminal philosophical text to emerge from the whole of antiquity,’ has been mentioned above (p. 67).

Platonic Pythagorean arithmetic would be accrued in post-classical times with the doctrines and refinements of later Academics, including what we now call Middle and Neo-Platonists, to the point that one of them has been judged, with Plotinus and Iamblichus, to postulate a new layer of reality, a new kind of rarified ‘number’, for every difficulty encountered in the text of the *Timaeus.* Some have gone so far as to call the Middle Ages an age of ‘New Pythagoreanism,’ thereby prompting a further specification: it was not just any Pythagoreanism, but the ‘mathematical Pythagoreanism’ of Nicomachus which ‘captured the medieval imagination’. Indeed,
as we advance down the centuries, it is important to keep in mind that the medieval image of Pythagoras had little to do with the historical Pythagoras, and it was not a novel creation but a direct outcome of the late antique presentations of Pythagoras found in such authors as Boethius (drawing on Nicomachus), Calcidius and Macrobius.\textsuperscript{131}

Similarly, the medieval Platonic tradition as a whole is much too complex to be described indiscriminately as either Platonism or Neoplatonism, and ‘often behind a Neoplatonic interpretation, or combined perhaps with an exegesis of Hellenistic provenance, a purely Platonic element is found.’\textsuperscript{132} In this landscape, the figure of Philo of Alexandria marks an important meeting point of traditions: Platonic, Aristotelian, Hellenistic, Jewish, and sets a tendency to harmonisation of diverging schools which would have a wide and lasting impact.\textsuperscript{133} To complete the panorama, especially as I intend to study Semitic derivations, it should be noted that since Alexandrian times the word ‘Hermetic’ is used to refer not just to works associated with the name Hermes, but also to all manner of works with ‘Gnostic’, ‘Neoplatonic’, ‘Neopythagorean’, or ‘esoteric’ tendencies, and eventually practically any early Arabic pseudopigraph.\textsuperscript{134}

And this conflation of schools and authors did not stop there. Even Aristotle, through the ascription of some Arabic translations to his name and other similar filtering,\textsuperscript{135} acquired eventually a rather Neoplatonic profile, which would make its way into Latin translations and convey a complex, if not outright baffling doctrinal variety.\textsuperscript{136} Witness to these developments are, for instance, pronouncements such as the first or second century bc Πλάτων πυθαγορίζει—Plato ‘pythagorises’,\textsuperscript{137} or Jerome’s famous ἢ Πλάτων φιλωνίζει, ἢ Φίλων πλατωνίζει, aut Plato Philonem sequitur, aut Platonem Philo, ‘either Plato is a Philonist or Philo is a Platonist’.\textsuperscript{138} The resemblance between Plato and Philo,

\begin{footnotesize}
\begin{enumerate}
\item 131. Huffman, \textit{History}, 21.
\item 132. R. Klibansky, \textit{The Continuity of the Platonic Tradition During the Middle Ages: Outlines of a Corpus Platonicum Medii Aevi} (London: Warburg Institute, 1939), 36.
\item 135. See Klibansky, \textit{The Continuity}, 40.
\item 136. See C. D’Ancona, ‘From Late Antiquity to the Arab Middle Ages: the commentaries and the »harmony between the philosophies of Plato and Aristotle«,’ in \textit{Albertus Magnus und die Anfänge der Aristoteles-Rezeption im lateinischen Mittelalter}, ed. L. Honnefelder, Subsidia Albertina 1 (Münster: Aschendorff, 2005), 54; and also M. Stepaniants and J. Behuniak, \textit{Introduction to Eastern Thought} (Walnut Creek, CA: AltaMira Press, 2002), 6.
\item 137. Aetius, II, 6, 6; Eusebius, \textit{Prep.}, 15, 37.
\item 138. \textit{De vir. ill.}, 11.
\end{enumerate}
\end{footnotesize}
both in contents and form, was so strong, that in a humorous anachronism Plato is suggested to have followed an author born centuries after.

**Nicomachus and his *Introduction***

Returning to the picture and as to Nicomachus’ Pythagorean credentials, he authored a biography of Pythagoras which proved most influential through Porphyry and Iamblichus. His *Introduction to Arithmetic*, despite its poorness from a mathematical point of view, was the most influential work on arithmetic from the time it was written, sometime between the latter part of the first and the first part of the second centuries AD, until the sixteenth century. The treatise was translated into Latin by Apuleius [lost] and some centuries later by Boethius, and it is the ultimate source of the arithmetical treatises of Cassiodorus, Martianus Capella, and Isidorus of Seville.

This same *Introduction* was translated into Arabic twice and it not only provided Avicenna with some arithmetical knowledge for his *Metaphysics*, but seems to have exercised a powerful influence on later Jewish and Islamic developments. Some scholars have found traces of Nicomachus’ *Introduction* in the *Rasā’il of the Ikhwān al-Ṣafā* and even possibly in the *Sefer Yetsirah*. Through these two major works, countless developments in Islamic and Jewish literature would carry the Pythagorean imprint, including key and long-lived Kabbalistic concepts. Furthermore, in 1317, Qalonymos b. Qalonymos produced a Hebrew translation from the Arabic which would circulate in Andalusia, exerting a non-negligible influence on Jewish thinkers from the fourteenth century onward. Recalling the previous chapter, the significance of Nicomachus in the field of arithmetic appears very similar to the one of Dionysius Thrax in grammatical tradition.

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141. For details, see G. Freudenthal and M. Zonta, ‘Remnants of Habīb Ibn Bahrīz’s Arabic Translation of Nicomachus of Gerasa’s *Introduction to Arithmetic*,’ in *Adaptations and Innovations: Studies on the Interaction between Jewish and Islamic Thought and Literature from the Early Middle Ages to the Late Twentieth Century*, dedicated to Prof. Joel L. Kraemer (Louvain: Éditions Peeters, 2007), 67.


143. See S. Wasserstrom, ‘Sefer Yesira and Early Islam: A Reappraisal,’ *Journal of Jewish Thought and Philosophy* 3, no. 1 (1994): 10. Thābit’s mathematical work was known to Sa’adyā Gaon, the earliest extant commentator of *Sefer Yetsirah*.

144. Freudenthal and Zonta, ‘Remnants,’ 69.
Nicomachus’ *Introduction* Tables

To jump finally into the thick of this centuries-long ‘conversation’ outlined above, whilst tracking in the original texts the course of the concept of the alphanumeric element, I present in the following pages a Nicomachean *tetrapla* of sorts in seven tables, comparing the Greek original, Arabic and English translations of it, and Boethius’ related passages, which are in most cases not translations but elaborations of the Greek material. I have also had occasion to consult some of the Hebrew manuscripts of the Qalonymos Hebrew translation, and thus to have on sight the three languages of medieval trilingual libraries facing the Arabic version which was so intimately and decisively related to the Greek and the Hebrew.

My English translation is based on D’Ooge’s translation from the Greek, with frequent adjustments of key terms with a view to bringing out the literal import and the possible connections of the text. I have added some highlighting to draw attention to phrases or concepts which are commented upon after every table. The asterisks * in the Arabic text indicate those readings judged dubious by Kutsch, whose diplomatic spelling I have retained throughout, including the absence of hamzas and other such details. The commentaries by Asclepios and Philoponus have been consulted too, though I have found little in them of much relevance to the passages discussed.

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148. BnF, Ms Hébreu 1093.
149. E.g. Corpus Christi, Oxford, or the Collège des trois langues, Paris, or Alcalá de Henares.
150. Asclepius of Tralles, *Commentary to Nicomachus’ Introduction to Arithmetic*.
<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nicomachus 1.1</strong></td>
</tr>
<tr>
<td>These real things would be things immaterial, by sharing in the substance of which everything else that exists under the same name and is so called is said to be &quot;this particular thing,&quot; and exists. For bodily, material things are, to be sure, forever involved in continuous flow and change—in imitation of the nature and peculiar quality of that eternal matter and substance which has been from the beginning, and which was all changeable and variable throughout. The bodiless things, however, of which we conceive in connection with or together with matter, such as qualities, quantities [...] all those things, in a word, whereby the qualities found in each body are comprehended—all these are of themselves immovable and unchangeable, but accidentally they share in and partake of the affections of the body to which they belong.</td>
</tr>
<tr>
<td>Esse autem illa dicimus, quae nec intentione crescent, nec retractione minuuntur, nec variationibus permutantur, sed in propria semper vi, suae se naturae subsidii nixa custodint. Haec autem sunt qualitates, quantitates (...) et quidquid adunatum quodammodo corporibus inventur. Quae ipsa quidem natura incorpora sunt, et immutabilis substantiae ratione vigentia, participatio vero corporis permutantur, et tactu variabilis rei, in vertibilem inconstantiam transeunt.</td>
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"ταύτα ἂν εἶη τὰ ἄυλα καὶ ὃν κατὰ μετουσίαν ἔκαστον λοιπὸν τῶν ὁμοονόμων ὄντων καὶ καλουμένων τόδε τι λέγεται καὶ ἐστι, τά μὲν γάρ σωματικά δήποτε καὶ ὑλικὰ ἐν διηνεκείßιν καὶ μεταβολῇ διὰ παντὸς ἐστίν μιμούμενα τὴν τῆς ἀρχῆς ἀιδίου ὕλης καὶ ὑποστάσεως φύσιν καὶ ἰδιότητα· ὅλη γὰρ δι' ὅλης ἦν τρεπτὴ καὶ ἀλλοιωτὴ· τὰ δὲ περὶ αὐτὴν ἢ καὶ σὺν αὐτῇ θεωρούμενα ἀσώματα, οἷον ποιότητες, ποσότητες (…) πάντα ἁπλῶς, οἷς περιέχεται τὰ ἐν ἑκάστῳ σώματι, ὑπάρχει καθ' ἑαυτὰ ἀκίνητα καὶ ἀμετάπτωτα, συμβεβηκότως δὲ μετέχει καὶ παραπολάει τόν περι τὸ ύποκείμενον σώμα παθῶν.

Esse autem illa dicimus, quae nec intentione crescent, nec retractione minuuntur, nec variationibus permutantur, sed in propria semper vi, suae se naturae subsidii nixa custodint. Haec autem sunt qualitates, quantitates (...) et quidquid adunatum quodammodo corporibus inventur. Quae ipsa quidem natura incorpora sunt, et immutabilis substantiae ratione vigentia, participatio vero corporis permutantur, et tactu variabilis rei, in vertibilem inconstantiam transeunt.
One of the interests we had was about the precise relation between the divine ‘archetypes’ and the phenomena (see above, p. 49). As regards letters, the interpretations seem to be all rather tropological, ‘a simile, a metaphor’, until we come to the Kabbalistic authors, but for the Pythagoreans, as we have seen and see here, number is more ontological. The relation between the numbers in divinis—which in the Arabic are further described as ‘eternal and everlasting’—and phenomena is expressed by the term μετουσία, consubstantiation, which is a strong one, used by Christian theologians to express the participation in God through Christ, the λόγος. The Arabic gives mushārakah, a ‘partaking’, which is not so substantial etymologically, but which is actually used to speak of the Christian communion. Further down, we have μιμούμενα, ‘represented’, against Thābit’s tashabbahu, which bespeaks a comparison. Boethius, in his adaptation of the text, speaks of the incorporeal reality being adunatum quodammodo corporibus, ‘united somehow to the bodies.’

One of the commentaries has the following to add here, regarding the archetypal relation:

\[ \text{ὡσπερ οὖν ἡμεῖς πρὸς ταῦτα βλέποντες τὰ σκιαγραφήματα ποιοῦμεν τόδε τὶ, οὔτω καὶ ὁ δημιουργὸς πρὸς ἐκεῖνον ἀποβλέπων κοσμεῖ τὰ τῇδε· ἀλλ’ ἵστεον ὅτι τὰ μὲν τῇδε σκιαγραφήματα ἀτελῆ εἰσιν, ἐκεῖνος δὲ ὁ λόγος ἀρχέτυπος.} \]

Just as when we look at blueprints\(^{152}\) and we make this or that, just so the Craftsman, by looking at that one [archetype] there, constructs what is here; but it should be known that our blueprints here below are imperfect, while that one over there is the arch-model analogy.\(^{153}\)

Of course, ὁ λόγος ἀρχέτυπος could be also rendered as the ‘archetypal word’ or the ‘archetypal ratio’.

\(^{152}\) The word σκιαγράφημα means literally ‘painting with the shadows,’ a suitable description for the action of the gnomon.

\(^{153}\) Asclepius of Tralles, Commentary to Nicomachus’ Introduction to Arithmetic, 1, 35.

\(^{154}\) See H. Dörrie, ‘Präpositionen und Metaphysik: Wechselwirkung zweier Prinzipienreihen,’ Museum
Finally there occur two more words for the same relation: μετέχει καὶ παραπολαύει. The first one is the more usual Greek root and it has its usual Arabic rendering in sharika again, but παραπολαύω means that the incorporeal ‘shares the fruits’ of the matter it qualifies. Thābit resorts to the root qarana, which has conjugal associations, while Boethius uses tactu.

Perhaps there is no inconsistency in terms, but a variation in points of view: what would appear from a coarser view as ‘comparison’ or ‘imitation’, might be seen as an essential participation from another subtler point of view. Thinking of qarana, notably the word used of planets ‘in conjunction’, how do we know if two persons (like a given phenomenon and its incorporeal principle) are married (μετονοσία) or if it is just that they share some circumstances (mushārakah), or that we see one with and about the other?

• Another point of note in this passage is the use of the Ar. ʿunṣur, a customary translation of στοιχεῖον, which is used here in al-ashyā’ al-jismāniyah al-ʿunṣuriyah as a rendering of υλικά, and further down in al-ṭabīʿat al-ʿunṣur as a translation of τὴν ἔξ ἀρχῆς φύσιν.

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<table>
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<tr>
<th>Table 2</th>
<th>Nicomachus 1.2</th>
<th>Boethius 1.1</th>
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<tbody>
<tr>
<td>ἐκεῖνα μὲν ἄυλα καὶ ἀάδια καὶ ἀτελεύτητα καὶ διὰ παντὸς ὁμοία καὶ ἀπαράλλακτα πέφυκε διατελεῖν, ώσαύτως τῇ αὐτῶν οὐσίᾳ ἐπιδιαμένοντα, καὶ ἐκαστὸν αὐτῶν κυρίως ὄν λέγεται (…) λέγεται μὲν ὁμωνύμως ἐκείνοις ὄντα, καθ’ ὅσον αὐτῶν μετέχει, ἕτερον δὲ τῇ ἑαυτῶν φύσει ὀφείλει ὄντως ὄντα.</td>
<td>Those things are immaterial, eternal, without end, and it is in their nature to persist ever the same and unchanging, abiding by their own essential being, and each one of them is said to be in the proper sense (…) These [other] are also said to be, with the same name, insofar as they partake of them, but they do not really exist by their own nature.</td>
<td>Haec igitur (quoniam ut dictum est, natura immutabilem substantiam vimque sortita sunt) vere proprieque esse dicuntur.</td>
</tr>
</tbody>
</table>
In this second passage we find again a characterisation of those incorporeal, eternal true entities, and yet another take on the relation between them and material entities: aside from the pair μετέχει–mushārakah, it is explained that material transitory things can be called ‘beings’ inasmuch as they partake of those eternal. The homonymy is conditional on the degree of participation.

We can start to see here how the sectioning of Boethius’ work is far from following to the letter Nicomachus’ original. He sometimes merges several Greek sections into one Latin, sometimes he develops one point or other in a detail not found in the Greek. In spite of the occasional collating difficulties, it is possible in most cases to see the ‘threads’ of Nicomachus’ original discourse. The Arabic, by contrast, is close to the Greek, with occasional changes in the order of the words.
Every diagram, system of numbers, every scheme of harmony, and every law of the movement of the stars ought to appear one to him who studies rightly; and what we say will properly appear if one studies all things looking to one principle, for there will be seen to be one bond for all these things [...] and if anyone attempts philosophy in any other way he must call on Fortune to assist him. For there is never a path without these; this is the way, these the studies, be they hard or easy; by this course must one go, and not neglect it (…) It is clear that these studies are like ladders and bridges that carry our minds from things apprehended by sense and opinion to those comprehended by the mind and understanding, and from those material, physical things, our foster-brethren known to us from childhood, to the things with which we are unacquainted, foreign to our senses, but in their immateriality and eternity more akin to our souls, and above to what is intellectual in them.

• Having just quoted Archytas, Nicomachus starts this famous passage with a quotation from Plato’s *Epinomis* (991d-e), which is the first clear mention of the quadruple way of study, here in particular a fourfold designation for a limited collection (jamāʿah) of fundamentals which reveal the unity of the cosmos, constitute the only right way to learn (ὅτι ὁ τρόπος, ταύτα τὰ μαθήματα), and which are likened to stairs and bridges from the sensible to the immaterial. The four names are διάγραμμα, jadwal, a geometrical proposition, a paradigm or table; ἀριθμοῦ σύστημα (jamāʿat al-ʿadad), a numerical assemblage; ἁρμονίας σύστασις, a composition of harmony (jamāʿat al-taʿlīf), referring to music; and τῶν ἄστρων φορᾶς ἀναλογία, the collation of the movements of the heavenly bodies (mushākalah harakāt al-kawākib, a rather too literal ‘analogy of the movements of the heavenly bodies’). Thābit equated σύστασις with σύστημα, translating both as jamāʿah. His translation here may indicate a slightly different text from the Greek we have.

Notwithstanding the *Epinomis* citation, in a chapter entitled ‘The Origin of the Quadrivium’, Merlan observes and explains how ‘closely the quadrivium is connected with the interpretation of the *Timaeus*’.¹⁵⁵

• These basic ‘diagrams’ are pontifical, as mentioned above: κλίμαξ καὶ γεφύραις, and Thābit has one more term, al-maʿābir wa-al-daraj wa-al-jusūr, ‘fords, a stairway and bridges’, gradus certaeque progressionum dimensiones. But they are not only the passageways: they also actively carry the rational mind across, διαβιβάζοντα τὴν διάνοιαν, tanqulu afhāmanā, animus perducitur, towards the intellective and the epistemic, τὰ νοητὰ καὶ ἐπιστημονικὰ, ad intelligentiae certiora.

• Boethius gives an adaptation of the passage, explaining that reason needed a determination of finite quantity through which it could seek the truth, and this is ‘the fourfold way’, his *quadri trium*, thus giving a unitary name to what in Nicomachus is simply a list of the four ways.

<table>
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<tr>
<th>Table 4</th>
<th>Nicomachus 1.4</th>
<th>Boethius 1.1</th>
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<tbody>
<tr>
<td>ἡ ἀριθμητική (...) ἐφαμεν αὐτὴν ἐν τῇ τοῦ τεχνίτου θεοῦ διανοίᾳ προποστήναι τῶν ἄλλων ὦσανὶ λόγον τινὰ κοσμικὸν καὶ παραδείγματικὸν, πρὸς ὃν ἀπερειδόμενος ὁ τῶν ὅλων δημιουργὸς ὡς πρὸς προκέντημα καὶ ἀρχέτυπον παράδειγμα τὰ ἐκ τῆς ὕλης ἀποτελέσματα κοσμεῖ καὶ τοῦ οἰκείου τέλους τυχάνειν ποιεῖ.</td>
<td>Arithmetic (...) existed before all the others in the mind of the artisan God like some universal and exemplary plan [λόγος], relying upon which as a design and archetypal example the creator of the universe sets in order his material creations and makes them attain to their proper ends.</td>
<td>Haec autem est arithmetica. Haec enim cunctis prior est, non modo quod hanc ille huius mundanae molis conditor Deus, primam suae habuit ratiocinationis exemplar, et ad hanc cuncta constituit, quaecunque fabricante ratione, per numeros assignati ordinis invenere concordiam; sed hoc quoque prior arithmetica declaratur, quod quaecunque natura priora sunt, his sublatis simul posteriora tolluntur.</td>
</tr>
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</table>
In this cosmogonic passage, arithmetic is the divine pattern for creation, reminding us strongly of Philo’s terms, and God is a craftsman or builder, τεχνίτης, ṣāniʿ al-ashyā’, conditor, and an artisan, δημιουργός, khāliq. The Arabic ‘ilm is in this context more sensitive than the English ‘mind’ to the range of meanings of διάνοια.

The model is like a cosmic logos, a ‘word of order’, or ‘embellishment’, a notion picked up by Thābit lines below with emphasis on the aspect of beauty implicit in κοσμικός and κοσμέω: wa-‘alā ḥasabihi khalaqahā wa-sawāhā wa-zayyana mā khalaqahu min al-ʿunṣur, ‘and what He made from the original raw material, He made and regulated and embellished according to it.’

This logos is used by the creator as προκέντημα and ἀρχέτυπον παράδειγμα, mithāl and ḥadhw. Of these terms, two have very practical crafts associations: the rare Greek προκέντημα echoes immemorial methods used to transfer a design by pricking (κεντέω), while the Arabic ḥadhw, defined as taqādir and qaṭ‘, a measuring and a ‘cut’ in the sense of a cutting pattern, has to do especially with shoe making, as in a pair of sandals (na‘l), implying the mirroring pattern of the two complementary sides.

The other key Arabic term used for the comparison between the model and the world is qiyās, also with the basic meaning of ‘measuring’, and perhaps best rendered as an ‘analogical relation’. Qiyās means also the premises of a syllogism, or the syllogism itself. This would make the relation between the archetypal realities and the world a ‘logical’ relation, as if the world were an inference from the noetic realm.

In this case, a detailed translation of Boethius’ Latin sheds some additional light on the main ideas:

Arithmetic is prior to all, not only because the builder God of the multiplex structure of the world had it as exemplar of his own ratiocination, and established by it all things which through the crafting apportioning through numbers came into the concord of the assigned order, but arithmetic is said to be first for this reason also, that whatever by nature are first, if they are removed, later things are also removed.

Masi and others tend to translate ratio as ‘logic’ or ‘reason’, but it is clear in most cases that the meaning verges towards mathematics. Here, D’Ooge’s ‘plan’ for λόγος

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156. See direct references to this passage in the online GALEx filecards Nicom.Arithm.0725 and Nicom.Arithm.0722.
159. The usage of ḥadhw for such an exalted term as the ‘archetypal paradigm’ casts a remarkable light on the veneration of the sandal pattern of the Prophet na‘l al-nabi so common through Islamic lands.
is satisfactory only if understood as the plan of a craftsman, a set of proportioned measures, a design, almost like a formula, a recipe, culinary or alchemical, in which strict proportions and procedures are specified (cf. above, p. 60), or as a musical score (cf. above, p. 70).
<table>
<thead>
<tr>
<th>Table 5</th>
<th>Nicomachus 1.6</th>
<th>Boethius 1.2</th>
</tr>
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</table>
| Πάντα τὰ κατὰ τεχνικὴν διέξο-
| δον ὑπὸ φύσεως ἐν τῷ κόσμῳ δια-
| τεταγμένα κατὰ μέρος τε καὶ ὅλα
| φαίνεται κατὰ ἀριθμὸν ὑπὸ τῆς
| προνοίας καὶ τοῦ τὰ ὅλα δη-
| μιουργήσαντος νοῦ διακεκρίθαι
| τε καὶ κεκοσμῆσαι βεβαιουμένου
| τοῦ παραδείγματος οἴον λόγον
| προχαράμματος ἐκ τοῦ ἀριθμὸν
| προποστάσαντα ἐν τῇ
| τοῦ κοσμοποίου θεοῦ διανοίᾳ,
| νο-
| ητόν αὐτὸν μόνον καὶ παντάσαιν
| ἄυλον, οὕσιαν μέντοι τὴν ὄντος
| τὴν ἁύδιον, ἵνα πρὸς αὐτὸν ὡς λό-
| γον τεχνικὸν ἀποτελεσθῇ τὰ σύ-
| παντα ταῦτα, χρόνος, κίνησις, ὰ-
| ρανός, ἀστρα, ἔξελιμοι παντοίοι. | All that has been arranged in the uni-
| verse by nature following a skilful way
| seems both in part and as a whole
| to have been determined and ordered
| in accordance with number, by the
| forethought and the mind of him that
| created all things; for the pattern was
| fixed, like a preliminary sketch, by the
| domination of number preexistent in
| the mind of the world-creating God,
| number intellectual only and imma-
| terial in every way, but at the same
| time the true and the eternal essence,
| so that with reference to it, as to
| an artistic plan, should be created all
| these things, time, motion, the heav-
| ens, the stars, all sorts of revolutions. |
| Ὑμεῖς τὰ ἅπα τοῦ κόσμου ἄνοιγ-
| μέντοι καὶ παντάσαιν ἄυλον, οὕσιαν
| μέντοι τὴν ὄντος τὴν ἁύδιον, ἵνα
| πρὸς αὐτὸν ὡς λόγον τεχνικὸν ἀ-
| ποτελεσθῇ τὰ σύμπαντα ταῦτα, χρό-
| νος, κίνησις, ὀρανός, ἀστρα, ἔξελ-
| λιμοὶ παντοίοι. | Omnia quaecumque a
| primaeva rerum natura
| constructa sunt, numerorum
| videntur ratione formata.
| Hoc enim fuit principale in
| animo conditoris exemplar.
| Hinc enim quatuor elemento-
| rum multitudo mutuata est,
| hinc temporum vices, hinc
| motus astrorum, coelique
| conversio. |
• κατὰ τεχνικὴν διέξοδον — Things are arranged in the world following a τεχνικὴ διέξοδος, which could be read as a ‘technical method’. However, thinking of the similarity with the Sefer Yetsirah, where God creates along/through thirty-two ‘marvellous ways of wisdom’ (netivot peli’ot hokhmah),161 I would rather keep ‘way’, which happens to be closer to the usual meaning of διέξοδος, a pathway, like an orbit, also a detailed narrative. Naturally, given the composition of the word itself, δι-εξ-οδος, it implies the passage through and outward of something. The Heb. hokhmah, notably unlike its Ar. cognate ḥikmah, has also the meaning of technical skill. So a Hebrew rendering of this phrase could very easily read: netivah hokhmah. Thābit gives ṭariq ṣanā‘ī.

• διακεκρίσθαι τε καὶ κεκοσμῆσθαι — What the numbers bring about in the world is this determination and ordering, an idea which acquires a nuance and development in the Arabic as mayyazahā wa-sawwāhā ‘alā ḥāl al-mahmūda al-jamīla, ‘He determined and regulated them in a praiseworthy and beautiful condition,’ adding ‘praiseworthy’ to the qualities of the universe, and once again bringing out the aspect of beauty implicit in κοσμέω.

• κατὰ — Coming back to the cosmological role of the prepositions, here we have this opening κατὰ, which I have translated as ‘following’ to suit διέξοδος, rather as a perlative,162 and which could be akin in its function to the opening ב of the Torah (Bere’shit) and of the most common version of Sefer Yetsirah. Thābit’s على shows even more possibilities: ‘upon a skilful pathway’, ‘along a way of craft’...

Further down, κατὰ ἀριθμὸν shows a somehow instrumental use of the preposition, and this aspect is disclosed partially in the Latin by saying numerorum ratione. The Arabic shows yet another facet of this κατὰ by saying ‘alā nasabi al-aʿdād, ‘in the lineage’ or ‘in relation to’, as if ‘under the parentage’ of numbers.

• mutuata — Again on the relation between number or the noetic realities and the transient world, the Latin uses an image not found before: the four natural elements borrow from numbers their multitudo—the fact that they are four, or perhaps the pattern of their proliferation?

• προχάραγμα — This word for the nature of the divine paradigm had not been used. It is related to engraving, like γράμματα, and it also makes me think about the inversions between the superior and lower realms that characterise the process of divine stamping and typing.163 It is related in its usage to προκέντημα, mentioned earlier, and it belongs very clearly to architecture. The corresponding Arabic is rasm mutaqaddim sābiq, a

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161. See Chapter 7 below.
162. The perlative case expresses movement through or along a referent noun. For Greek examples, its synthetic causal meaning, and links to ‘the extensive and manifold uses of Hebrew ב’, cf. P. Bortone, Greek Prepositions: From Antiquity to the Present (Oxford University Press, 2010), 158, 192–3.
163. Cf. below, p. 120.
'previous prepared sketch'.

- ἐπέχειν — Yet another facet of the ‘participation’ is made explicit when the sketch is said to have been established ἐκ τοῦ ἐπέχειν, ‘by the domination’, ‘due to the control’ of pre-sup-posed (προυποστάς) number. This domination seems not to have been conveyed into the Arabic or the Latin. Perhaps it might be better, especially given the syntax, to use the intransitive meaning of ἐπέχω, which is frequent with διανοία and νοῦς, meaning ‘attend to’, ‘direct one’s mind’; as if the divine number were in-tended or directed toward the constitution of the heavenly paradigm.

- The other points of note here simply reprise themes mentioned earlier, like the supernal ‘location’ of the models (ἐν θεοῦ διανοίᾳ, fi ‘ilmī Llāh, in animo conditoris), or their immaterial and eternal quality.
<table>
<thead>
<tr>
<th>Nicomachus 1.11</th>
<th>Boethius 1.14</th>
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<tr>
<td>αὐτῶν μέντοι συντεθέντων ἑαυτοῖς δύναντ’ ἂν ἄλλοι γενέσθαι ἀπὸ πηγῆς ὡσανεὶ καὶ ῥίζῃς αὐτῶν τούτων ἀρχόμενοι, διότερ πρῶτοι καλοῦνται ὡσανεὶ ἄρχαι ἐκείνων προουποκείμενοι- ἀρχὴ δὲ πᾶσα στοιχειώδης καὶ ἀσύνθετος, εἰς ἣν πάντα ἀναλύεται καὶ ἐξ ἧς πάντα συνίσταται, αὐτὴ δὲ εἰς οὐδὲν καὶ ἐξ οὐδενὸς.</td>
<td>Hi autem in semetipsos multipli- cati faciunt alios numeros velut primi, eosque primam rerum substantiam vimque sortitos, cuncto- rum a se procreatorum velut quae- dam elementa reperies, quia sci- licet, et incompositi sunt, et sim- plici generatione formati, atque in eos omnes quicumque ex his pro- lati sunt numeri resolvuntur, ipsi vero neque ex alii producuntur, neque in alia reducuntur.</td>
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<td>When they are combined with them- selves, other numbers might be pro- duced, as from a fountain and a root, having them as principles, where- fore they are called ‘prime’, because they exist beforehand as the prin- ciples of the others. For every prin- ciple is elementary and in- composite, into which everything is made, but the principle itself cannot be resolved into anything or constituted out of anything.</td>
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• συντεθέντων — this paragraph speaks of the prime numbers. Their productive ‘combination’, changed in Latin to multiplicatio, but retained in Arabic as rukkiba maʿa nafsahu, is reminiscent of Sefer Yetsirah §19–21, where the combination (Heb. hamir, tsaraf) of the letters brings about the world. Συντίθημι is often used for addition, whereas multiplication is expressed by πολλαπλασιάζειν or simply the preposition ἐπί. E.g. τὰ ἡμίσηα ἐπ’ ἄλληλα = ‘the halves multiplied by each other’.

• The primes are called ‘roots’ (al-asās) as were the elements by Empedocles. They are also compared to a fountain, πηγή, yanbū‘.

• ἀρχὴ πᾶσα στοιχεώδης — ‘every principle is elementary’, is modified in Ar. to al-ibtidā’ alladhī huwa bi-manzilat al-ʿunṣur, ‘the beginning in lieu of element’, recalling the phrase τὰ καλούμενα στοιχεῖα. The relation between ἀρχὴ and στοιχεῖον, at times verging on synonymity, is of interest, as we had seen by the grammarians, in that it shows how the latter term was far from being exclusively used for the material components.

• Prime numbers have an elemental aspect which makes them very interesting for this research—each one is ‘unique’ and through their combination it is possible to produce all numbers. However, the primes are infinite, which is at odds with the limited number of letters in an alphabet. An alphabet cannot be infinite, since its power lies partly in the small, easy to grasp, number of its components. The question then remains open: in what way, if at all, are the primes ‘elementary’? This is precisely the topic of the next and last passage.

<table>
<thead>
<tr>
<th>Nicomachus 2.1</th>
<th>Boethius 2.1</th>
</tr>
</thead>
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<tr>
<td>Επειδή στοιχεῖον λέγεται καὶ ἕστιν, ἔξ ὁδ ἐλαχίστου συνισταται τι καὶ εἰς ὁ ἐλάχιστον ἀναλύεται οἶον γράμματα μὲν τῆς ἐγγραμμάτων φωνῆς στοιχεία λέγεται, ἡ ἄντων τε γὰρ ἢ σύστασις τῆς συμπάσης ἐνάρθηρο τοῦ ἀπὸ καὶ εἰς αὐτὰ ἔσχατα ἀναλύεται: φθογγοὶ δὲ μελῳδίας ἁπάσης, ἀφ' ὧν ἄρχεται συγκρίνεσθαι καὶ εἰς οὓς ἀναλύεται· κοινῇ δὲ τοῦ κόσμου τὰ λεγόμενα τέσσαρα στοιχεῖα ἀπλὰ ύπάρχει σώματα, πῦρ, ὕδωρ, ἀήρ, γῆ· ἐκ γὰρ πρωτίστων αὐτῶν ἡ σύστασις τοῦ παντὸς φυσιολογεῖται καὶ εἰς αὐτὰ ἔσχατα ἐπινοεῖται ἡ ἀνάλυσις.</td>
<td>An element is said to be, and is, the smallest thing which enters into the composition of an object and the least thing into which it can be analysed. Letters, for example, are called the elements of inscribed speech, for out of them all articulate speech is composed and into them finally it is resolved. Sounds are the elements of all melody; for they are the beginning of its composition and into them it is resolved. The so-called four elements of the universe in general are simple bodies, fire, water, air, and earth; for out of them in the first instance we account for the constitution of the universe, and into them finally we conceive of it as being resolved.</td>
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| Table 7 |

| Sed quae rerum elementa sunt, ex eisdem principaliter omnia composuntur, et in eadem rursus resolutione facta resolvuntur. Ut quoniam articulares vocis elementa sunt litterae, ab eis est syllabarum progressa coniunctio, et in eadem rursus terminatur extremas, eandemque vim obtinet sonus in musicis. Iam vero mundum corpora quattuor non ignorantis efficere. Namque (ut ait Lucretius) Ex imibri terra atque animaignonetur et igni; sed in haec rursus eius quattuor elementa fit postrema resolutio. Ita igitur, quoniam ex aequalitatis margine cunctas inaequalitates species proficiisci videmus, omnis a nobis inaequalitas ad aequalitem rursus, velut ad quoddam elementum proprii generis resolvatur. | |
Nicomachus opens the second part of his book looking for the στοιχεῖον of arithmetic, and in order to do so he defines the word, and he certainly does not have in mind a material principle. There is indeed a remarkable subtlety in the use of the word: there is an emphatic καὶ ἔστιν at the beginning which only appears in a clearer light when the four cosmic τὰ λεγόμενα στοιχεῖα are mentioned (al-ajsām allatī yuqālu lahā al-ʿanāṣir). So these four are only called elements, but at the beginning, speaking in general, he had specified that the smallest components of something not only are called but are indeed elements. The comparison with the letters and the sounds only brings up more questions, as the relation between written letter and sound is brought in as a sort of topos and left unexplored. The strain put on the Arabic translation is patent when ḥurūf, 'letters', has to be used in the middle of the paragraph, before returning to ‘anāṣir, 'elements'.

Conclusion

From Nicomachus’ days (first–second century AD) until the sixteenth century, he was honoured for his Introduction to Arithmetic among Greeks, Latins, Jews and Arabs, who considered his work to be the basis of the science of numbers. He was considered a pivotal thinker between early Pythagorean and Platonist authors and the new developments in Neoplatonic and other groups.

Boethius’ writings, dating from the sixth century were so decisive in defining the intellectual currents of the twelfth century that it is often called the aetas Boethiana. He was also considered a pivotal figure, frequently described as ‘the last of the Romans and the first of the scholastic philosophers’, between the end of Antiquity and the beginning of the Middle Ages.

Thābit ibn Qurra was one of the most accomplished scholars active in Baghdad during the ninth century, and his contributions encompass not only arithmetic but also astronomy, mechanics, geography and medicine. As a Sabian from Harran and a Syriac speaker, Thābit was among the scholars destined to contribute to one of the most important cultural transfers in the history of Europe, the translation of the Greek heritage into Arabic at the heart of Islamic civilisation.

The continued and authoritative unanimity of these three scholars through the centuries is testimony to the shared set of basic cosmological tenets found with little variation from Greek antiquity to the late Mediterranean Middle Ages, in what was

165. See Nicomachus of Gerasa, Introduction to Arithmetic, 124.
effectively not only a trilingual but a quadrilingual world. We have here an example of what Curtius calls ‘a community of great authors throughout the centuries’, who ‘by a series of interconnections across time’ held together the Mediterranean cultural continuum.\textsuperscript{168} In fact, by the comparison above of the three versions of the \textit{Introduction}, we have plunged into the Middle Ages, leaping across centuries and yet as if stationary in a scholarly community of shared doctrines.

In the following chapter I shall return to late antiquity and the early Middle Ages, to follow a closely parallel thread of Pythagorean arithmetic in a world transformed by the advent of the Abrahamic faiths.

\textbullet

But before proceeding, I will close this chapter with some verses from Boethius’ \textit{De consolatione philosophiae} (3, 9) which have been said to ‘summarise in less than thirty verses the entire first part of the \textit{Timaeus}, as if suspended between Platonism and Christianity.’\textsuperscript{169} In doing so, they recapitulate the time span between the most ‘Pythagorean’ pages of Plato and the Abrahamic monotheistic discourse which would be adopted by European philosophy from Boethius on.

\begin{align*}
O \text{ qui perpetua mundum ratione gubernas} \\
Terrarum caelique sator qui tempus ab aevo \\
Ire iubes stabilisque manens das cuncta moveri, \\
Quem non externae pepulerunt fingere causae \\
Materiae fluitantis opus, verum insita summi \\
Forma boni livore carens, tu cuncta superno \\
Ducis ab exemplo, pulchrum pulcherrimus ipse \\
Mundum mente gerens similique in imagine formans \\
Perfectasque iubens perfectum absolvere partes. \\
Tu numeris elementa ligas [...]
\end{align*}

\begin{flushleft}
O you who rule the world with steady reckoning, \\
father of lands and heaven, who from eternity \\
ordered time to advance, and who unmoving set everything in motion, \\
you whom no external causes forced to give shape \\
to a work from unsteady matter, but rather the inner form \\
of the highest good, free of any envy. You who bring forth \\
all things after the exalted heavenly pattern, producing in your mind
\end{flushleft}

\textsuperscript{168} Curtius, \textit{European Literature and the Latin Middle Ages}, 18, 397
a beautiful world as you are beautiful, and shaping it in faithful resemblance, ordering that its perfection be accomplished in every one of its parts. You bind with numbers the elements [...] 

These verses follow only a few lines after Lady Philosophy has explained: Sed cum, ut in Timaeo Platonis nostro placet, in minimis quoque rebus divinum praesidium debet implorari—‘since, as in the Timaeus it pleased our Plato, in the smallest things too one should invoke divine guidance.’ The connection to the Platonic dialogue is thus explicit, and the verses quoted echo the demiurgic work and several of the cosmogonic stages described in Timaeus. At the end of the quotation, we can see how the arrangement of the elements in the world, literally a binding up (ligas), is accomplished by the power of number.

Hardly a better illustration of this tight geometric knot of the elements in the cosmos could be found than the ‘Mundus-Annus-Homo rota’ below, where the elements and their qualities are tied (ligati) within and by a perfectly rigorous geometric pattern (numeris). Moreover, the rota in the text of Isidore accompanies a quotation from the Hexameron of St Ambrose (3, 5) which describes the intricate, ‘conjugal’ (iugales) relations between elements and qualities, and finishes explaining how

per hunc circuitum et chorum quendam concordiae societatisque conueniunt. unde et graece στοιχεῖα dicuntur quae latine elementa dicimus, quod sibi conueniunt et concinant.

Through this circle and dancing round of sorts they are united in concord and fellowship. And this is why what we call ‘elements’ in Latin, are called στοιχεῖα in Greek, because they unite and are in accord with one another.

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171. From a woodcut in the edition of the De natura rerum of Isidore of Seville, printed in 1472.
The next steps in my investigation will explore further the particulars and various manifestations of this cosmogonic and cosmological concert and chorus of the στοιχεῖα.
Part II

Alphanumeric Cosmology in the Abrahamic Scriptures
Introduction · Change and Continuity

Following the evolution of our concept through late ancient and early medieval philosophy, I need to take stock of two major contextual shifts which in many ways will determine every intellectual endeavour for at least fifteen centuries after Nicomachus of Gerasa: the cultural diversification of Classical Graeco-Roman civilisation, and the spreading and establishment of a monotheistic worldview.

The conquests of Alexander the Great in the fourth century BC and the eventual Roman imperial expansion had as a most lasting combined result the gradual emergence of a cosmopolis quite foreign in practice to any classical Attic or Roman republican polity. By the turn of the era, just after the time of Dionysius Thrax, the main cultural centre of this ‘Mediterranean’ cosmopolis was Alexandria, where Roman citizens and foreigners of all origins coexisted in a cultural melting pot that never ceased to hark back to the glories of Classical Greece and Rome, and yet never stopped evolving into new forms. While the eventual division of the Roman empire (285 AD), the adoption of Christianity as official imperial religion (380 AD), and the advent of Islam in the early seventh century altered completely the socio-political panorama, it only took decades in each of these cases for a remarkable and deep scholarly continuity to be reaffirmed through the surface changes of peoples, languages and religions.¹

A figure like Nicomachus, whose influence we started studying in the previous chapter, is a testimony to this ongoing cultural integration. Nicomachus hailed from the Roman East as did also, in later times, several of the greatest Platonists. Iamblichus came from an illustrious Emesan family boasting Aramaic, Arabic, Greek and Latin names. One could also mention Proclus, who was born in Constantinople, or his disciple Marinus, who is thought to have been a Jew from Syria Palæstina.²

Here we have indeed one of the most remarkable facts in the history of philosophy. As famously happened to the mighty Romans when they became disciples of their Athenian subjects, just so, wave after wave of new political, social and religious superstructures would eventually adopt and appropriate the same pool of ultimate philosophical concerns and questions brought together by Aristotle, effectively the great coordinator of early Greek philosophy.

The idea of one almighty and beneficent deity was not foreign to classical antiquity, where the boundaries between ‘monotheism’ and ‘polytheism’ were fluid within a

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¹. This is all closely related to the view summed up by Guy Stroumsa when he speaks of a ‘connected religious history’ across a ‘scriptural galaxy’; see G. G. Stroumsa, ‘The Scriptural Galaxy of Late Antiquity,’ in A Companion to Religion in Late Antiquity (Hoboken, NJ: Wiley Blackwell, 2018), 563, 566.
continuum, and did not determine exclusive domains. In fact, the idea of a *summum bonum* was already in the Platonic dialogues and was abundantly elaborated upon by Plato’s followers. Through all the upheavals and in spite of all the conflicting beliefs, this idea became the great unifying doctrinal factor of the post-Classical *cosmopolis*, as is evinced by the shared Abrahamic ancestry professed by all three mainstream religions, Judaism, Christianity and Islam, which would witness, assimilate and transmute the demise of Classical civilisation in so many ways.

More specifically within our field of interest, one major common doctrine shared by the Abrahamic faiths was the primacy of the Divine Word, either as the cosmogonic *fiat* ‒ the ten creative Jewish *ma’amarot*, the Islamic creative command, *amr* ‒ or as a cosmological manifestation of the divine as λόγος, aurally as recitation, Ar. *qur’an*, and as the letters (Heb. *otot*) and the verses (Ar. cognate *āyāt*) of the Holy Book. I shall repeatedly come back to these fundamental terms in the coming pages, examining in detail how they relate to our sought-after ‘elements’ in their phonetic, graphic and logical dimensions, when and how they may recall one or another of the many facets of the στοιχεῖα found in previous pages, and in what ways our concept moved through languages and cultures.

Trying to organise the wealth of material pertaining to this chapter opens up many possibilities: to be strictly chronological, or work at a time on each of the linguistic/religious domains, or attempt a thematic sectioning, but given that the main interest is to bring into relief the correspondences and connections, and to show how our basic concept disregards time, languages and subject boundaries, I shall continue as I started in previous chapters, placing the emphasis on the semantic analogies and connections rather than on a very linear timeline: I shall take points of departure arranged in chronological order of works and authors, but within each particular section I will allow for as much time travelling as is required by this comparative procedure. Having said that, the four chapters in this second part will move approximately, allowing for exceptions, between the beginning of the Christian era and the eighth century.

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Chapter 3

Jewish Sources and Exegesis

Tanakh and Translations

Honouring ancient methodology, I shall start by having a look at the Jewish scriptures themselves, bringing in for comparison the most influential translations used throughout the Middle Ages by most communities of the Abrahamic faiths:¹ the early Greek translation or Septuagint, Latin renderings from Jerome’s Vulgate, and some medieval Arabic versions. In each of these forms, the text of the Tanakh was to exercise a lasting and powerful cultural influence, not only in religious environments, but also in various scholarly fields, given that scriptural authority provided the epistemological foundation of every discipline.

Genesis—Creation by Speech

The prominence of language in Jewish cosmogony, of the spoken word in particular, is at first sight evident from as early as the third verse of Genesis, wa-yo’mer elohim..., ‘and God said...’² This expression, which occurs nine other times in the first chapter, is added to the opening be-re’shit to total what are called the ‘ten ma’amarot’, ‘the ten utterances’ through which everything was created.³ There will be occasion to return to these ten afterwards, but the remarkable status of the first ‘utterance’ (be-re’shit), which

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¹. The important Syriac, Armenian, Ge’ez and Georgian textual traditions exceed my competence and will not be treated in this work.
². Cf. Psalms 33:6, ‘By the word of the Lord were the heavens made; and all their hosts by the breath of His mouth.’
³. Talmud Megillah 21b:10, ‘The Gemara asks: What are these ten utterances? Presumably, they are the utterances introduced by the words “and God said” in the story of Creation in the first chapter of Genesis. However, there are only nine of these utterances and not ten. The Gemara answers: The expression: “In the beginning” is also considered an utterance... which indicates that the first utterance of Creation was the general creation of the entire universe.’
seems to not be one at all, should not escape our attention as we ascertain the role of letters and numbers in this cosmogony.

According to several rabbinical authorities, the Torah itself was created before the universe, and Rashi comments that ‘God created the world for the sake of the Torah.’ In the Midrash Tanhum’ (Bere’shit 1:1), we find that ‘when the Holy One, blessed be He, was about to create this world, He consulted (hitya’ets) the Torah before embarking upon the work of creation.’ This ‘consultation’ is specified further in Tanhum’ Buber (Bere’shit 5:1), ‘While God was creating the world, he was looking at the Torah,’ which was like a trusted model (amon), a word cognate to the liturgical amen. And a few lines below, ‘How was the Torah written? It was written with letters of black fire on a surface of white fire.’ In 3 Enoch, it is specified that these letters, ‘by which’ or ‘through which’ were created heaven and earth, mountains and hills, seas and rivers (and a long list...), were ‘engraved with a flaming style on the Throne of Glory’ (haquqot be-’et shelakevet ‘al kise’ ha-kavod). Summing up then, we have, even before the creation of the universe, the Torah as a model for divine creation, as a template constituted by letters of fire. Odeberg puts it succinctly in his edition of 3 Enoch, ‘all possible otiyyot and shemot [letters and names] are represented as contained in the Torah. “The letters of the Torah” is the technical term for the cosmical letters.’

Now, there is an alternative letter-related exegesis of the first verse which does not have to do with the entire alphabet but only with the letters of the divine name. The letters of the Divine Name are the constituents of the world, especially the letters of YHWH and ‘EHYE (...), and even more exclusively the letters Yod and He. A convoluted explanation commences involving several passages, as follows.

We start with Gen. 1:1, בָּרָא שֶׁת בָּרָא אֱלֹהִים. This verse is normally parsed as ber-eshit bara’ elohim, ‘In principle God created’, but the reading reported from several Mishnaic sources uses a different vocalisation: bara’ shet, ‘God created six,’ referring

4. Bere’shit Rabbah 1: 4, ‘In the beginning of God’s creating...’ — Six things preceded the creation of the world [...] ‘The Torah and the Throne of Glory were created.’ See also J. L. Kugel, Traditions of the Bible: A Guide to the Bible As It Was at the Start of the Common Era (Harvard University Press, 1998), 46-7, for references to the Torah as Wisdom personified.
5. Note also here the related word aman, a workman or artificer. In V. Armenteros Cruz, ‘Midrás Tanhum’ Buber a Génesis: traducción, notas y análisis estructural-hermenéutico’ (PhD diss., Universidad de Granada, Departamento de Filología Semítica, 2006), 93, other meanings of amon are reported from Midrash Rabbah, like a ‘tutor’ and a ‘pedagogue’—all having to do with the basic idea of ‘trust’. Reference is also made to Philo’s doctrinal parallel, which I shall be discussing soon.
7. The ‘engraving’ method corresponds exactly to the Gr. γραφεῖν and its production, γράμματα.
8. Odeberg, 3 Enoch, 172.
9. See Bere’shit Rabbah 12, 2; The Letters of Rabbi Akiba (Washington DC: Government Printing Office, 1897), 713, and for other references, Odeberg, 3 Enoch, 34-5.
to the six letters of a holy name. This is then compounded with Is. 26:4, בַּיָּהוָה צוּר עוֹלָמִים, which is usually read as be-yah YHWH tsur ‘olamim, ‘in Jah Jehovah is a rock of the worlds,’ but becomes be-YHYHWH tsawar ‘olamim, ‘He formed the worlds by YHYHWH,’ so the ‘six letters’ mentioned in Gen. 1:1 would be YHYHWH, what translators make into ‘Jah Jehovah’ or ‘the LORD GOD’ or ‘the LORD, the LORD’. Finally, to round off and support this interpretation, Gen. 2:4 is given an unusual reading too: the verse speaks of ‘the generations of heaven and earth when they were created (be-hibar'am),’ but this last word בהיבראם is read instead as be-HY bara'am, ‘He created them by HY.’

What is clear at the end of this complex explanation, rather Kabbalistic avant la lettre, is that the ‘letters of creation’ would be the six letters בַּיָּהוָה צוּר עוֹלָמִים, and not necessarily the entire alphabet. It will be noted how this special status of a subset of letters is comparable to the special cosmological status of some Greek letters, like the vowels which are identified with the seven planets.¹⁰

Another frequent and relevant association to the primordial re’shit and the hexameron is that of the construction of the tabernacle (mishkan) or the pitching of a tent (ohel), because ‘the Tabernacle is equal to the creation of the world itself.’¹¹ The image is architectonic, and is found with the alternative association to the building of a house—‘May our master teach us the benediction one should offer upon the building of a new home!’ (ha-boneh bayt ḥadash).¹² One of the relevant scriptural associations is Psalm 119:90–91, ‘Thou hast established the earth, and it standeth’ (konanta erets wa-ta‘amod).

Here we may remember how in one of the Greek commentaries the letters were compared to building blocks, and how the crucial term στοῖχος designates a course of bricks in building.

Finally, from a numerical point of view, there is a notable explanation in Midrash Tanḥuma’ (Bere’shit 5), as to why the account of creation opens with a bet: ‘The letter bet is employed in order to teach man that there are two worlds, this world and the hereafter.’ This explanation is based on the numerical value of bet, two, and it seems clear that the question is equivalent to saying ‘Why does the Torah open with two?’ The identity between letter and number is a matter of fact.

¹⁰. See above, pp. 45 and 46.
¹². Midrash Tanḥuma’, l.c., and Bere’shit 4:1.
Psalm 33:6

A passage often mentioned in the Talmud when discussing the creation is Psalm 33:6,¹³ 理工大学,  ‘By the word of the Lord were the heavens made; and all the host of them by the breath of his mouth.’ This is said to indicate ‘that all of creation came into existence through a single utterance, after which all matter was formed into separate and distinct entities by means of the other nine utterances,’ since ‘the first utterance of Creation was the general creation of the entire universe.’¹⁴ And specifying, ‘the hosts of heaven are the angels, who are created from the mouth of God.’¹⁵ This concept of a primordial moment in divinis, from which all reality is later ‘expanded’ or ‘elaborated’, reminds of the cosmogonic primacy accorded to the monad among the Pythagoreans, and to the related grammatical exegeses about the alpha among Greek grammarians. In one of the above pages,¹⁶ we had a glimpse into the relation between letter-numbers and angels, but here this relation may be specified: the first letter-number belongs as if to a different order altogether, while the rest of the decad-alphabet would be formed by ‘angelic’ beings. In fact, it is a common doctrine¹⁷ that from every one of God’s utterances an angel is created. I shall have occasion to dwell further on this angelic comparison in later sections.

Exodus—Bezalel

In Exodus 31:2–5, we find this remarkable testimony when on top of Sinai Moses is told:

See, I have called by name Bezalel the son of Uri, son of Hur, of the tribe of Judah, and I have filled him with the Spirit of God, with proficiency and intelligence, with knowledge and all craftsmanship (mal’akha), to design designs (lahshov mahshavot), to work in gold, silver, and bronze, in carving (haroshet) stones for setting, and in carving wood, to work in every craft (mal’akha) [highlighting mine].

This is repeated almost verbatim at 35:30, when Moses engages Bezalel to do the job, and it is later referred to in ch. 36 when the building work is undertaken.

¹⁵. Ḥagigah 14a:3.
¹⁶. See p. 40.
¹⁷. See Ḥagigah 14a:71, and also Odeberg, 3 Enoch, 34.
The crucial beginning of verse 4, with the cognate accusative לָחַשְׁבָּהָ, which I translate as ‘to design designs’, was paraphrased in the Septuagint as διανοεῖσθαι καὶ ἀρχιτεκτονήσαι, bringing out both the epistemological and technical aspects of חשב, which has an arithmetic basic meaning of computation and calculation. The same expression was rendered into the Latin of the Vulgate as ad excogitandum, which, like ‘design’, does not imply necessarily the idea of calculation in the original—the arithmetic nuance was lost in the Latin.

I have highlighted above the terms used in this passage for carving and craft because of the relation they have with the creating, or rather shaping, power of number we encountered above in Nicomachus’s description of the cosmogonic role of number, but what is really relevant for us is what the Talmud (Berakhot 55a3) has to comment on this passage:

Rab Judah said in the name of Rab: Bezalel knew how to combine the letters by which the heavens and earth were created. It is written here (Ex. 35), ‘And He hath filled him with the spirit of God, in wisdom and in understanding, and in knowledge.’

אמר רב יהודה אמר רב יהודה לשכלל לפני פרצ אלתר חכמה בדעתו ודעתו והמה בארור

Following the Exodus text, we would have expected to see that the heavens and earth were ‘designed, calculated, devised’ (all translations of ḥashav),¹⁹ but instead it is remarkable how the verb used here for creation is נבראו nivra’u, passive of bara’, usually reserved in theology for creatio ex nihilo. In addition to this, on the same Talmud page, Rashi comments that this is said of the letters, ‘regarding their combination as mentioned in Sefer Yetsirah.’ This further complicates the determination of the kind of creative act envisaged in this demiurgic text, by establishing a link to יצר yatsar, yet another alternative for crafting from pre-existent matter, as is also the idea of ‘combining’, tsaref.

Something else worthy of note is the etymology and ancestry of Bezalel. He is ‘by

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the shade of God’, be-tsel-El,²⁰ and he is son of Uri, ‘my light’, providing a new reference
to the luminous nature of the letters, which ‘make the mind bright’ as we had found
earlier.

Counting the Glory

An important occurrence of ספר safar, a crucial triliteral root in our research, which
combines the meanings of writing and counting, is found at the beginning of Psalm 19,

The heavens recount the glory of God, and the sky tells of the work of His hands.

What I would single out here is that the semantic complexity at the basis of
mispar, ‘number’, and מספר mesaper, ‘to recount’, is strictly analogous to the one found
in English and other Indo-European languages when we speak of giving an account or
doing accounts, like Fr. compter/raconter, Sp. un cuento/la cuenta, por favor.²¹ There is
also the same ambiguity of the verb ‘to tell’, as in ‘telling a story’, or in a ‘teller machine’,
and even stronger, that is, harder to distinguish, in ‘telling our beads’, which finds an
inverse of sorts in the expression to ‘count prayers’.

Another relevant passage on this topic is Gen. 5:1, בְּשָׁמַיִם מְסַפְּרִים כָּבוֹד אֶל תְּמוּנָה וְיִהְיֶה יְהֵי מִגְּדִיל קָצֵר
this is the record of Adam’s line,’ a verse considered by Ben Azzai ‘the major principle of the
Torah,’²² in which the word ספר is a major object of commentary and is explained as
meaning a ‘record’ or a ‘list’ rather than a book. Luzzatto explains succinctly: ספר,
‘Sefer is a tally [sefirah] and a narrative (sippur).’²³

All this is meant to point out that there is hardly any disagreement here from a
Pythagorean-Platonic cosmological point of view. In Epinomis 978b7ff., the answer to
the question πῶς ἐμάθομεν ἀριθμεῖν, ‘How have we learnt to count?’ is precisely the
order and regularity of the celestial movements. Referring to the psalm above, Ibn Ezra
comments that ‘no one can understand this passage who has not the science of the
stars.’

Rashi’s commentary to this first verse brings together some of the different
meanings:

²⁰. For this interpretation and later developments, cf. M. Idel, ‘Reification of Language in Jewish
²¹. For more examples and detailed analysis in the context of narratology, see J. García Landa,
‘Narrating Narrating: Twisting the Twice-Told Tale,’ in Theorizing Narrativity, ed. J. Pier and J. García
²². Cf. the Torat Kohanim Parshat Kedoshim.
²³. Shadal on Genesis 5:1. The s-f-r root of sippur, inasmuch as it refers to a narrative, brings to mind
the classical Greek term στοιχηγορέω, ‘to tell a story in regular order,’ ‘with στοιχίος,’
The Psalmist himself explains the matter below: ‘There is neither speech nor words’ [19:4]. They do not speak with the creatures [they are inaudible] except in the sense that ‘their radiation goes forth throughout the earth’ [19:5] and they give light to the creatures, and thereby the creatures recount the glory of God and give thanks and bless [Him] for the luminaries.

Aside from other aspects, here we encounter again the luminosity of the letter-numbers, this time made explicit in an astronomical fashion: the heavenly bodies like a supernal writing which recounts the glory of God; when the creatures perceive this radiation, they in turn do the recounting.

The Potter of Light

Another important Tanakh passage is Jeremiah 18:6,

O house of Israel, cannot I do with you as this potter? saith the Lord. Behold, as the clay is in the potter’s hand, so are you in my hand.

This verse is directly related to Isaiah 45:7, part of a formidable self-characterisation of God,

I form light and create darkness; I make peace and create evil; I am the Lord, who does all these things.

The relevance of these verses for us has to do with the use of the above-mentioned root יצר yatsar, ‘to shape, fashion, form’, or in a general sense ‘to create’ as a craftsman does. This imagery became incorporated into liturgical life in the Yotser Or, ‘Creator of Light’, also known as Birkat Yotser, ‘Blessing of Creation’, the first of the two blessings recited before the Shema during the morning religious services.

Blessed are you, Lord our God, King of the universe, who forms light and creates darkness, who makes peace and creates all things. Blessed are you Lord, who forms the luminaries.
The יוצר yotser as a particular type of craftsman is here implicitly referring to craftsmen and their arts in general, but the synecdoche became explicit centuries later in the *piyyut Ka-homer*, still sung at Yom Kippur, in which God is invoked as a potter, a stoneworker, a blacksmith, a sailor, a glassblower, an embroiderer and a silversmith.²⁴

**Acrostics**

A literary device in the *Tanakh* which is significant for this research is the alphabetic acrostic or *abecedarium*, a series of verses or stanzas in which every unit starts with a letter of the alphabet in sequential order. The origin of acrostics is attributed by Rabbinic tradition to Solomon,²⁵ but this kind of composition is found already in Akkadian poetry, and it was common in Syriac, Greek, Roman and later Byzantine literature.²⁶ The best known biblical example is Psalm 119, where from alef to taw, every letter presides over eight successive verses, for a total of 176 verses. Other important alphabetic acrostics include Psalm 145, the eulogy of the good wife in Proverbs 31, and the first four chapters of Lamentations. In this last example, the alphabet is set out complete four times, one after another.²⁷

But beyond compositional details, what is of main value in the light of my research is the meaning, the purpose of the alphabetic acrostic. This formal structure used to appear as an oddity to modern scholars, who tried to justify its use mostly as a didactic mnemonic device,²⁸ on the assumption that aesthetic grounds alone could not justify such an impediment to artistic and poetic expression.²⁹ Now contemporary scholarship has been consistently widening its views regarding these acrostics, bringing

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²⁵. Song of Songs Rabbah 1:7.


²⁷. See Lamentations Rabbah 5.


in explanatory theories from cognitive sciences\textsuperscript{30} and allowing for more comprehensive and historically-aware literary judgements.\textsuperscript{31} I shall simply add here some remarks from the very particular angle of my research, hoping to contribute to the effort at understanding these acrostics in their own historical context. I would like to suggest that we have enough testimonies and comparative data to allow for more than a resigned guess.\textsuperscript{32}

First we have some old testimonies:

The expression ‘from \textit{alef} to \textit{taw}’ is found repeatedly in Rabbinic literature to mean ‘from A to Z’, ‘entirely’, as in ‘Abraham performed the law from \textit{alef} to \textit{taw};\textsuperscript{33} and as in the commentaries to Daniel 9:11, ‘Israel has transgressed your law’ \textit{עבַּדְיָהָ תֹּרַהְתֵּךְ}. Lamentations Rabbah (1:20) and 3 Enoch (44:9), among other sources, explain that it means ‘they have transgressed all the letters in the Torah,’ reading the accusative preposition of \textit{et toratekha} as the abbreviation of the alphabet. A correct translation of Daniel’s verse would accordingly be ‘Israel has transgressed the A–Z of your law.’ In later literature, the expression is also found referring to the blessings of God upon earth.\textsuperscript{34}

The relation between this expression and the Greek ‘alpha and omega’ has been studied and associated to Isaiah 44:6, ‘the Lord of hosts, I am the first and I am the last’ \textit{יהוה צבאות אניראשון ואניאחרון}.\textsuperscript{35} I am reminded here of the image of army ranks we had encountered in the first chapter, and I shall leave the Christian parallels for a later section. One noteworthy commentary to this verse is the following dialogue,

‘What is the seal of God?’

‘Truth \textit{אמת}.’

‘And why truth?’

‘Because “truth” has three letters: \textit{alef}, the first letter; \textit{mem}, the middle one; and \textit{taw}, their end.’\textsuperscript{36}

\textsuperscript{30} See Van der Spuy, ‘Hebrew Alphabetic Acrostics,’ 516.

\textsuperscript{31} Cf. Kadelbach, ‘Das Akrostichon,’ 205, ‘When games are understood not simply as pointless activities, but rather as the satisfaction of a primal human need which brings the \textit{homo ludens} into harmony with himself, God and the World, only then can acrostic poetry also be perceived as a playful fulfilment of the human ideal.’

\textsuperscript{32} See Van der Spuy, ‘Hebrew Alphabetic Acrostics,’ 515.

\textsuperscript{33} See Midrash Tehillim 112; Yalqut Shim’on, remez 871.

\textsuperscript{34} Chidushei Agadot to Bava Batra 88b (part of Vilna edition).


\textsuperscript{36} Devarim Rabbah 1:10. Regarding this conclusive image of the seal, and also in its ‘protective’ aspect, cf. M. B. Sendor, ‘The Emergence of Provençal Kabbalah: Rabbi Isaac the Blind’s \textit{Commentary on Sefer Yeẓirah}. Vol. 2, translation and annotation’ (PhD diss., Near Eastern Languages and Civilizations, Harvard
Now, considering the dual character of the letter-numbers we have been studying, it seems evident that an acrostic is not only a way of alphabetically sorting lines or paragraphs, but also and simultaneously an enumeration. Considering the qualities of the στοιχεῖα we have already listed, it is easy to agree with the cognitive scientists when they note how the alphabetic acrostic communicates ‘a well-defined order, a finite structure and the sense of a complete unit and wholeness’.³⁷ Considering the elevated cosmological rank of letters and numbers, it is hard to ignore that such an enumeration, in the liturgical context of the scripture, would not only serve a sort of cataloguing purpose, but that it is also a direct reference to the cosmic order and its attributes.

Drawing again from the Timaeus (32c5ff.), we can recall how, in the composition of the world, the Composer uses up every one of the four (sc. elements), leaving nothing unused. This is related to what Lovejoy considered a major philosophical principle, his ‘principle of plenitude’,³⁸ according to which the universe is a plenum formarum in which the range of conceivable diversity is exhaustively exemplified, since the extent and abundance of the creation must be commensurate with the productive capacity of a ‘perfect’ and inexhaustible Source. This also gives us an opening onto a new field of correspondences, if we compare this principle with the Evangelic and Gnostic concept of a fullness in divinis, in Greek a πλήρωμα, ‘like a completely coherent and comprehensive matrix, timeless, ungenerated, immaterial and perfect, of the physical cosmos’.³⁹ A key term related to this Pleroma in Gnostic literature is τύπος,⁴⁰ a ‘stamp’, an ‘imprint’ or simply a ‘model’, used either to describe entities within the Pleroma as types (models) of lower entities, or to describe the lower phenomena of this world as types (impressions) of entities in the Pleroma—this has to do with the same fundamental ambiguity inherent to the craft of printing that we have in the English term ‘impression’, and to which I shall soon have occasion to return.⁴¹ After this consideration, it is easier to see to what extent there is a connection between ‘the seal of God’ of the previous page and the plenitude of the alphabet.

³⁷ Van der Spuy, ‘Hebrew Alphabetic Acrostics,’ 516, my italics.
³⁹ J. Dillon, ‘Pleroma and Noetic Cosmos: A Comparative Study,’ in Neoplatonism and Gnosticism, ed. R. T. Wallis and J. Bregman, Studies in Neoplatonism: Ancient and Modern 6 (SUNY Press, 1992), 100. I should note that for the purpose of this work, and pace Dillon, the Talmudic and other Rabbinic references discussed in previous sections will be considered enough evidence of a ‘purely Jewish’ idea of ‘a whole, articulated archetypal world, by reference to which, as a pattern, God makes this one.’
⁴⁰ ‘A virtual synonym for the more Platonic eikon’, see ibid., 107.
Summary

What stands out very clearly from the above pages is that the Tanakh and all its commentaries through the centuries not only include as a major theme the cosmogonic power of speech, or at least of divine speech, but also that the attention to the relevance of the elements of that speech is embedded formally in the form of abecedaria and has also been commented upon from very early, like in the Talmud passage regarding Bezalel, and the passages of 3 Enoch, estimated to date between the fourth and seventh centuries AD.

Later in this chapter, I shall introduce very important Jewish textual traditions which, although not so explicitly connected to the Tanakh, shed more light on our central topic.

For the time being let us retain from the above quotations: the consideration of a divine speech or script, the inextricable unity between the concepts of telling and counting, the cosmogonic aspect of the letters of the divine name, the connection between technical creativity and light, and the relation between a certain angelology and the basic elements of creation.

Philo

As mentioned in the previous chapter (see above, p. 82), Philo stands as a crucial figure in the development of Hellenistic and Jewish philosophy and exegesis. It is as if from his particular intellectual vantage point, being conversant with both the Greek tradition and the Jewish scriptures, he had been able to bring the characteristically autonomous philosophical discourse to bear on Biblical hermeneutics, while at the same time enriching Greek Hellenistic cosmology with elements of Jewish origin. All this from a distinctly 'Platonic' doctrinal position which gave rise to the Pythagorean associations, as evident, among other works, in his Περὶ τῆς κατὰ Μωϋσέα κοσμοποίησις, The Making of the World according to Moses (De opificio mundi), which discusses the creation of the world according to the Genesis hexaemeron. It is perhaps because of this middle ground he occupied—he has been dubbed 'a concordist between the Bible and Timaeus'—that he was neither incorporated into the roster of Greek philosophers nor to the Jewish rabbinical authorities, and even his supposed Hebrew name, Jedediah (ידידיהו), seems


43. See G. González Rabassó, ‘Subtilitates naturae: Continuitats i ruptures a la cosmologia d’Hildegarda de Bingen’ (PhD diss., Facultat de Filosofia, Universitat de Barcelona, 2015), 96.
to be a rather late Italian scholarly whim. As pointed out by Bentwich,\(^4^4\) Philo was remembered as ‘the Jew’ (‘Philo Judaeus’) by the outer world, but as ‘Jedediah the Alexandrian’ (דידייה אלכסנדר) by his own people.

In any case, the doctrinal relations between Philo, Plato and the Pythagoreans seem to have been very clear for the Church Fathers. St Jerome reports the already mentioned popular saying, ἤ Πλάτων φιλωνίζει, ἤ Φίλων πλατωνίζει.\(^4^5\) Clement of Alexandria called Philo repeatedly ‘the Pythagorean’, an epithet which Runia has examined in detail\(^4^6\) to conclude that rather than referring to the arithmological exegesis so common in Philo’s works, and despite the extensive use of the ‘Bible of the Platonists’ (Plato’s Timaeus), ‘Pythagorean’ simply meant that there is a dominant Platonist element in Philo’s thought. This would be related to the frequent association between Plato and Pythagoras.

It is worth noting, to further compose the view, these lines also in the Stromata (1.22.150),

Νουμήνιος δὲ ὁ Πυθαγόρειος φιλόσοφος ἀντικρυς γράφει· τί γάρ ἐστι Πλάτων ἢ Μουσῆς ἀττικίζον; Numenius, the Pythagorean philosopher, expressly writes: ‘What is Plato, but Moses speaking in Attic Greek?’

Given subsequent developments in doxography, especially Jewish and Islamic, the following approximation would not seem to be wide of the mark:

\[
\text{Pythagoras} \approx \text{Plato} \approx \text{Philo} \approx \text{Moses}
\]

But let us leave this provoking community for the moment, and turn immediately to those themes in Philo which might justify it, and which relate to what we have been studying.

**On the Making of the World**

After speaking in detail of the materials of a construction, like stones and wood, Philo turns to their symbolic correspondence,

\[\text{μετελθὼν οὖν ἀπὸ τῶν ἐν μέρει κατασκευῶν ἱδε τὴν μεγίστην οἰκίαν ἢ πόλιν, τόνδε τὸν κόσμον· εὐρήσεις γάρ αἰτίων μὲν αὐτοῦ τὸν θεόν ὑπ’}\]
Moving on from these particular fixtures, consider now the greatest house or city, namely, this world: you will find that God is its cause (αἴτιον), by whom it came into being, that the materials (ὕλη) are the four elements (στοιχεῖα), of which it is composed (συνεκράθη); that the instrument (ὄργανον) is the word [or reckoning] (λόγος) of God, by means of which it was set up (κατεσκευάσθη—furnished, arranged); and the object of the building you will find to be the display of the goodness of the Craftsman.⁴⁷

The ‘elements’ are mixed like ingredients in a recipe, and the ‘word’ is the instrument. Now, that Word-Reckoning surely is also formed by stoicheia (letter-sounds, numbers) of another level. We have here again, more clearly, two implicit levels of stoicheia, the material meaning, and the ‘noetic’ uncreated one, or perhaps ‘formed not yet created’. It is worth remembering how we had found in the first chapter that the letters were a representation of the heavens, whereas now, with the world elements modelled on a ‘primordial printout’ (ἀρχέτυπον) in divinis, there would seem to be an inversion. As mentioned above, this would fit with the alternation between mould and cast which characterises printing techniques.

In another passage, Philo asks the reader to think of God’s creation as that of an architect,

λέγως ἢρα τὴν μεγαλόπολιν κτίσειν διανοηθεὶς ἐνενόησε πρότερον τοὺς τύπους αὐτῆς, ἐξ ὧν κόσμον νοητὸν συστησάμενος ἀπετέλει καὶ τὸν αἰσθητὸν παραδείγματι χρώμενος ἐκείνῳ. καθάπερ οὖν ἢ ἐν τῷ ἀρχιτεκτονικῷ προδιατυπωθεῖσα πόλις χώραν ἐκτὸς οὐκ εἶχεν, ἀλλ’ ἐνεσφράγιστο τῇ τοῦ τεχνίτου ψυχῇ, τὸν αὐτὸν τρόπον οὐδ’ ἢ ἐκ τῶν ἰδεῶν κόσμος ἄλλον ἀν ἔχοι τόπον ἢ τὸν θεῖον λόγον τὸν ταύτα διακοσμήσαντα:

Just as when he thought through the construction of a great city, and he conceived first its types/characters [a blueprint or mould], from which he would compose and bring to completion a noetic world, which he would then use as a paradigm for the perceptible world, similarly, just as the city, previously impressed (προδιατυπωθεῖσα) in the architectonic paradigm, was not situated anywhere, but was stamped solely in the soul of the craftsman, neither could the world of the ideas have any

⁴⁷ De cherubim, 127, 1.
other location except the divine reckoning (λόγος) which had devised (διακοσμήσας) them.48

We find here again in several instances the important image of the ‘impression’ or ‘stamping’ related to the word τύπος, with the addition of σφραγίς, ‘seal’, to the same semantic group.49 The origin of this imagery goes back to the Timaeus (cf. 39e7, 50c-d), with further developments in Middle Platonism under the influence of the Stoa.50

Another important aspect of the divine design is order, τάξις, an ‘arrangement’, which in the first chapter I have shown to be, according to the Greek grammarians, essential to the concept of στοιχεῖον. The following passage makes explicit once again the relation between τάξις and ἀριθμὸς, but now in a cosmogonic context.

Ἑξ δὲ ἡμέραις δημιουργηθῆναι φησι τὸν κόσμον, οὐκ ἐπειδὴ προσεδεῖτο χρόνων μήκους ὁ ποιῶν (…) ἀλλ’ ἐπειδὴ τοῖς γινομένοις ἔδει τάξεως. τάξει δὲ ἀριθμὸς οἰκεῖον.

He [Moses] says that the world was crafted in six days, not because the Maker needed any length of time (…) but because the new things required arrangement [order]; and number is akin to arrangement.51

Given the features of Philo’s cosmogony, it should be clear that the usual translation of κοσμοποιία as ‘creation of the world’, though perhaps not inaccurate in view of the Greek, would benefit from a more nuanced approach. What the texts contain is the description of the ‘making’, the ‘fashioning’, or the ‘crafting’ of the world from the point of view of a master craftsman, especially an architect, while the word ‘creation’ carries with it, especially in this context, the connotation of an ex nihilo process.52

Archetype and Noetic Creation

The word ‘archetype’, which was current as a model, and had also been used in philosophical contexts in that general sense, acquires in Philo a meaning which seems

48. Opif., 19–20. Cf. Runia, On the Creation, 139, ‘the seal or mould (σφραγίς) first has to be engraved or marked out with markings (τύποι or χαρακτήρες) before it can be used to imprint form on receptive material. Because it is the prime source of the transferred design, it is also called the ἀρχέτυπον (literally “first or chief marking”), and see below.
49. According to Chantraine, the origin of this word remains unclear in spite of various hypotheses, cf. P. Chantraine, Dictionnaire étymologique de la langue grecque: histoire des mots (Paris: Klincksieck, 2009), s.v. σφραγίς (hereafter cited as DELG).
52. About this very controversial topic in Philo studies, see Runia, On the Creation, 152-3.
to reflect the influence of his Jewish background.\textsuperscript{53} We may not owe to Philo the first ever occurrence of the word ‘archetype’ in a metaphysical sense, for it had been used by some contemporary Platonists and by Stoic authors,\textsuperscript{54} but it is particular to Philo that the ‘archetype’ is used with the full import of its printing connotation, with the notion of ‘type’ in the sense of imprint—the idea of stamping, or etching as explained above. Further down in \textit{Opif.}, 25, we find,

\begin{quote}
δήλον ὁτι καὶ ἡ ἀρχέτυπος σφραγίς, ὃν φαμεν νοητὸν εἶναι κόσμον, αὐτὸς ἀν εἴη [τὸ παράδειγμα, ἀρχέτυπος ἰδέα τῶν ἰδεῶν] ὁ θεοῦ λόγος.
\end{quote}

It is plain that the archetypal seal, which we affirm to be the intelligible cosmos, would itself be the model and archetypal idea of the ideas, the Logos of God.

[transl. Runia]

To complete this topic, I would like to present another passage,

\begin{quote}
προλαβὼν γὰρ ὁ θεὸς [...\ldots\ldots] ὅτι μίμημα καλὸν οὐκ ἄν ποτε γένοιτο δίχα καλοῦ μίμημα καὶ νοητὴν ἰδέα τῶν αἰσθητῶν ἀνυπαίτιον, ὃ μὴ πρὸς ἀρχέτυπον καὶ νοητὴν ἰδέαν ἀπεικονίσθη, βουληθεὶς τὸν ὁρατὸν κόσμον τουτονὶ δημιουργῆσαι προεξετύπου τὸν νοητὸν, ἓν χρώμενος ἀσωμάτῳ καὶ θεοειδεστάτῳ μίμημα, τοσαῦτα περιέξοντα αἰσθητὰ γένη ὅσαπερ ἐν ἐκείνῳ νοητῇ.
\end{quote}

God, apprehending beforehand [...] that there could not exist a good imitation without a good model, and that of the things perceptible to the external senses nothing could be faultless which was not fashioned with reference to some archetypal idea conceived by the intellect, when he had determined to create this visible world, cast first that one which is perceptible only to the intellect, in order that so using an incorporeal model formed as far as possible on the image of God, he might then make this corporeal world, a younger likeness of the elder creation, which should contain as many different perceptible genera as there are intelligible ones in the other world.\textsuperscript{55}

In these lines the notion of likeness, model, copy and imitation stand out, all in relation to the first ‘noetic’ creation. Nothing comes to be directly, but rather mediated

\textsuperscript{53} See \textit{TDNT}, s.v. λέγω.
\textsuperscript{54} Cf. Runia, \textit{On the Creation}, 151.
\textsuperscript{55} \textit{Opif.}, 16.
by this intermediary creation, whose author and crafting are described in demiurgic and ‘poietic’ terms. We also encounter here again the notion of a quantitative correspondence between the ideal and the material realms, the ‘principle of plenitude’.

The Model is Λόγος

This ideal noetic model is often referred to by Philo as the λόγος, a word that in his works expresses forcefully his own singular position between Hellenism and Judaism, as I have mentioned.⁵⁶ In the following passage, Philo explicitly lays bare what had remained implicit in previous paragraphs.

If you should wish to use words at their most naked, you would say that the noetic world is nothing but the Logos of God as he is actually engaged in making the world;⁵⁷ and a city too, when only perceptible to the intellect, is nothing but the reason/reckoning/counting of the architect, who is then and there designing to build another one perceptible to the external senses, on the model of that which is so only to the intellect [...] Accordingly Moses, when recording the creation of man [...] asserts expressly that he was cast in the image of God—and if the part is image of an image, then manifestly this is the case too for the whole. And if this entire perceptible world, which is greater than the human image, is a representation of the divine image, it is clear also that the ‘archetypal seal’, what we call the intelligible world, would itself be the paradigm, the archetype, the idea of ideas, the Logos of God.⁵⁸

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⁵⁶. See TDNT, s.v. λέγω, B-4.
⁵⁷. See Runia, On the Creation, 148–51, and p. 94 for the last part of the Greek paragraph.
the discourse is about the divine all-possibility, the word is rife with its manifold senses, meaning inclusively, among others: collection, reckoning, calculation, account, consideration, enumeration, catalogue, narrative, word, speech.

Finally, in De mutatione, 135, we find the same motifs further detailed and forcefully put as a rhetoric question,

τίνος ὁ δακτύλιος, ἡ πίστις, ἡ τῶν ὅλων σφραγίς, ἡ ἀρχέτυπος ἰδέα, ἢ τὰ πάντ’ ἀνείδεα ὄντα καὶ ἄποια σημειωθέντα ἐτυπώθη; [...] ἆρ’ οὐχὶ μόνου θεοῦ;

Whose is the signet, the pledge, the stamp of all things, the archetype idea by which all things lacking form and quality were imprinted as meaningful signs [...] if not God’s alone?

**Numbers: the Tetrad and the Decad**

Philo’s usage of numerology pervades his works. It is not that he uses isopsephy, but that he constantly appeals to the arithmetical properties of numbers in order to advance his explanations, and so, even though his Περὶ ἀριθμῶν is not preserved, we can have a very clear picture of the number doctrines he espoused. ‘His testimony, in brief, is that the Greek arithmetica, as Nicomachus knew it and compiled it, existed also in Philo’s day, and was accessible to and generally known by the well-educated man, even if he were not a professional mathematician.’

As an example of his numerology, which gives also an insight into his arithmetic views, here is an important passage (Opif. 47) where he extols the virtues of numbers four and ten,

ο̣ δ’ οὐρανός διεκοσμεῖτο αὖθις ἐν ἀριθμῷ τετελείῳ τετράδι, ἣν δεκάδος τῆς παντελείας σύκ ἄν διαμάρτοι τις ἄφορμήν εἶναι λέγων καὶ πηγήν-δο γάρ ἐνετελεχείας δεκάς, τοῦτο τετράς, ὡς ἔοικε, δυνάμει· εἰ γοῦν οἱ ἀπὸ μονάδος ἄχρι τετράδος ἐξῆς συντεθεῖεν ἄριθμοι, δεκάδα γεννήσουσιν, ἤτις ὁρος τῆς ἀπειρίας τῶν ἀριθμῶν ἔστι, περὶ ὃν ὡς καμπτήρα εἰλοῦνται καὶ ἀνακάμπτουσι.

Heaven in its turn was ordered with a perfect number, the four. You would not go astray in affirming that it is the principle and source of the all-perfect number ten; for what the ten is in actuality, the four, it would seem, is potentially. If the numbers from the unit to the four are added up, they will produce the ten. It forms the boundary for the infinitude of numbers,

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which wind around it like a turning post and turn back.
[transl. Runia]

It is important to observe here that such a view of number ten as the axis on which revolves the ‘infinitude of numbers’ is what lies at the basis of the concept of Pythagorean ‘roots’ (πυθμένες) and the calculations based on them, and it is, even more significantly for this research, a testimony to the vitality of the reverence accorded to the decad.

Finally, in the following reference are combined numeric symbolism and arithmetic understanding, to give an insight into the metaphysics of number at the basis of Philonian thought,

\[
\text{διαφέρει δὲ μονὰς ἑνὸς ᾗ διαφέρει ἀρχέτυπον εἰκόνος· παράδειγμα μὲν γάρ ἡ μονάς, μιμήμα δὲ τῆς μονάδος τὸ ἕν.}
\]

The monad differs from one like the archetype from its image, for the monad is the model, and one is the \textit{representation} of the monad.

It is clear that the monad, the dyad, the triad and so on up to the decad—which are the objects of arithmetic speculation—are only called numbers by extension, figuratively. In reality they are something different, and they belong to a paradigmatic level from where the numbers draw their appearance.

\textbf{Chapter Summary: Philo in Perspective}

Philo is at a cultural crossroads, explaining the \textit{beri’ah} (\textit{creatio ex nihilo}) of the hexaemeron in the symbolic language of a \textit{yetsirah}, or to put it in Greek terms, he is putting a \textit{genesis} in the terms of a poetic. At the heart of his exegesis there is \textit{λόγος}, combining in its many facets the basic order and hierarchy of the alphabet, and also its semi-divine nature and its intermediary function. It is doubtlessly in the order intrinsic to this \textit{λόγος} where we find in Philo the closest functional equivalent to our alphanumeric \textit{στοιχεῖα}.

When Philo uses the word itself \textit{στοιχεῖον}, it refers to the ‘material’ elements, and not to the cosmogonic principles which inform the visible world. The brief grammatical passages where he uses the term exhibit the same basic

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60. See above p.64.
62. I may also mention in this regard the ‘spermatic substances’ and ‘invisible patterns’, \textit{σπερματικαί οὐσίαι} which contain \textit{ἄδηλοι λόγοι} (\textit{Opif.} 43), mentioned on occasion of the creation of plants. Some scholars draw here clear parallels to the Stoic doctrine of \textit{spermatikoi logos}; see Runia, \textit{On the Creation}, 56 and 184.
alternation between the meaning of phoneme and written character which is found in other authors.⁶³

As Philo constitutes a first monumental point of contact in cosmological doctrines between the Greek world and the Jewish tradition, I shall now move to another instance of the same conjunction, but one which would become incomparably more widespread and would begin not as a scholarly endeavour but as a religious movement, I mean the advent of Christianity.

A connection between Philo and Middle Platonist and Stoic philosophers has been mentioned, opening an entire new vista towards more or less contemporary developments in the Hellenic world.⁶⁴ However interesting these developments can be, I shall for the moment concentrate on pursuing the alphabetic thread into the early Christian literature, and only afterwards return to Greek philosophy in order to examine the fate of our concept in Late Platonic authors.

⁶³. Agr. 137; Det. 7; Her. 210; Leg. 3.121; Mut. 63; Opif. 126; Sacr. 76
⁶⁴. For the relevant references, see Runia, On the Creation, esp. 33, 139 and 184, where are treated topics related to this research.
Chapter 4

Christian Sources and Exegesis

Letters-Numerals of the Christic Word-Number

After the previous pages, and after the insights obtained in the second chapter about the root meaning of λόγος, it will hardly be surprising that we proceed to study how our concept appears in Christian doctrine and exegesis, given that at the very heart of this religion, the figure of Christ himself is identified since the earliest times with a cosmic divine λόγος. The first and most important testimony to this in the Christian scriptures is the beginning of the Gospel of St John, which gave rise over the centuries to commentaries and doxological developments of all sorts.

Ἐν ἀρχῇ ἦν ὁ λόγος, καὶ ὁ λόγος ἦν πρὸς τὸν θεόν, καὶ θεὸς ἦν ὁ λόγος.

In the beginning was the logos, and the logos was with God, and the logos was God.

Given the present context, the best option is to leave λόγος untranslated, and thus to allow for the full import of its polysemy. By doing so, this Johannine cosmogonical account reveals with clarity its resemblance to a Pythagorean-Platonic creation with number, or through the word, as in the Genesis ma’amarot, or by means of a pattern as in Philo’s architectural cosmogony. The semantic richness is aptly expressed by the Greek Fathers when they appeal to the text itself and affirm that ‘no one can grasp the sense (νοῦς) of this Gospel who has not reclined his head on Jesus’ chest and who has not received his mother Mary from him as his own mother.’¹ Another interesting note in the Catenae is that the verb ἦν should be understood as indicative of an eternal and everlasting being (τοῦ ἀεὶ καὶ ἀπειρῶς εἶναι).²

2. Ibid., 180.
In any case, Augustine famously noted how *quod graece λόγος dicitur latine et rationem et verbum significat*, 'what is expressed by λόγος in Greek, is expressed in Latin by *ratio* and *verbum*.'³ Quoting this very passage in his commentary to *De divinis nominibus*, Aquinas delves one step further into the meaning, explaining how *ratio* has four meanings: 1) *cognoscitiva virtus*, hence that God may be called *ratio*, comprehending 'every cognition, either reason, mind or wisdom and of everything in every way'; 2) *causa*, and God is so called not only as being the cause of everything, but—and this is Dionysius—as 'having gathered in himself primordially the causes of all things in a uniform way (μονοειδῶς)';⁴ 3) *computatio*, a calculation or reckoning, as in Matt. 18:23–4, where a king is said to 'settle accounts';⁵ and 4) *aliquid simplex abstractum a multis*, used precisely because the divine *ratio* is the most simple above all simplicity, and the most separate or abstracted from all things.⁶

I barely need to refer the reader to the correspondences in Philo above, and to other previous similar findings. I shall instead concentrate on the remarkable second point to steer my argument towards my main concern in the alphanumeric elements. The 'containing of the causes of all things' is specified by Aquinas, *non per modum compositionis, sed per modum uniformitatis et simplicitatis*, 'not as they are within composites, but inasmuch as they are unidimensional and simple,' which in view of the divine στοιχεῖα can easily be thought to refer to the elemental quality of those secondary causes, as if on a list or row of simples. If this were so, we might expect to find elsewhere in the Christian tradition exegetical developments that pointed in this direction. And indeed we have several such developments, the first and most directly relevant of which I shall present in the following pages.

*Mysteria litterarum*: Textual History

The *Mysteria litterarum* was known from a Coptic-Arabic bilingual manuscript studied since the late nineteenth century.⁸ A French translation of the Coptic was published by

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3. Augustine, *De diversis quaestionibus*, §63.
4. For another passage in Aquinas which edges even closer to the demiurgic understanding of *ratio*, much in the manner of Philo, 'as a ratio or *type* that preexists in the mind of the craftsman', see E. Pattaro, *A Treatise of Legal Philosophy and General Jurisprudence (Volume 1: The Law and The Right)* (Dordrecht: Springer, 2005), 322-3.
5. *Rationem ponere*, transl. NRSV.
8. Bodleian Ms. Huntington 393, dated 1393. For the most complete and recent history of the text, see Bandt, *Vom Mysterium*, and G. G. Stroumsa, ‘The Mystery of the Greek Letters: a Byzantine Kabbalah?’, *Historia religionum* 6, no. 6 (2014): 35–44. There is also a recent online translation from the Coptic by Anthony Alcock.
Hebbelynck in 1900/01.⁹ Although a Greek Ms was known to be in Paris and mentioned by some authors who were interested in particular aspects of the text, it was only in 1980 that Paramelle studied this Greek witness and wished for an edition of the three versions together, Greek, Coptic and Arabic.¹⁰ Bandt has now partially fulfilled his wish; she has established that the original is Greek, that it was translated into Coptic, and from there into Arabic. Her 2007 monograph includes a Greek text based on all known Greek and Coptic/Arabic Mss., a rich preliminary study and German translation. The final pages of the text are only extant in Arabic, and apparently go rather off topic (‘obscuré jusqu’au rebus’, says Paramelle).

The authorship is attributed by a Greek Ms. to John of Damascus, by the Coptic to an Apa Seba (Saba in Ar.). Based on this, Amélineau had attributed this to St Sabas of Jerusalem (439–532), and others, even more specifically, to an author within the monastic community of St Sabas, namely Saint Eustathius of Galatia, who was a calligrapher by profession.¹¹ What all these conjectural authors have in common is their monastic life at the Great Lavra of St Sabas (Mar Saba), which continues to function to this day near Bethlehem. It has become conventional to speak of Ps.-Sabas as the author.

Being an original Greek work, it is quite remarkable that most parallels to its ideas are found in Jewish literature.¹² Bandt singles out three works in particular where the idea of creation related to the twenty-two letters is found, and each of them is related to a Prophet:

1. The Book of the Palaces (Sefer hekhalot—henceforth SH) or 3 Enoch
2. The Sefer Yetsirah (SY)—Abraham
3. The Book of Jubilees (BJ)—Moses

I have already quoted before several passages from the SH. As for the BJ, Bandt describes it as the ‘earliest occurrence of the idea of relation between the Hebrew alphabet and the divine work of creation.’¹³ She also observes that whereas in ML the relation between the shapes of the letters and the cosmic realities is metaphoric, the Hebrew letters are seen in Jewish tradition as the actual material of the creation; Hebrew is indeed the language of creation, the cosmogonic language, and the divine act of creation is equalled to an act of writing.

¹¹. Bandt, Vom Mysterium, 8.
¹². How much so is evident also from Stroumsa’s mention of a ‘Byzantine Kabbalah’.
¹³. Bandt, Vom Mysterium, 51. The ref. is to BJ 2:1–25.
Regarding SY and Abraham,\(^{14}\) attention is first drawn to the astronomical connections of Abraham, who came from Ur of the Chaldaeans (=astronomers). Abraham, however (and quite in agreement with Qur’anic material),\(^{15}\) is special in that he submitted his astronomy to the power of the One God. Bandt quotes a remarkable passage of the BJ in which Abraham’s metanoia is described in terms almost identical to the Qur’anic account. But I shall have occasion later to return in more detail to the significance of SY.

Regarding Moses, what is paramount is his ‘authorship’ relation to the Torah. Bandt cites familiar Jewish traditions according to which the Torah is considered the ‘blueprint’ of the cosmos and, even more specifically, the particular letters each have a cosmogonic function. According to a tradition already cited,\(^{16}\) “The Holy One, praised be He, said, ‘I need workers.’ The Torah said to Him, ‘Let me provide you with twenty-two workers, the twenty-two letters which are in the Torah, and I give each of them its due.’”

*Mysteria litterarum*—the text

The larger part of *ML* is dedicated to a letter by letter exegesis, including symbolic interpretations of the letter shapes, which are outside our ken, but the opening paragraphs, fortunately near where the extant Greek begins, contain the cosmological gist of the book. The author starts by describing how it was upon reading two New Testament passages that he was brought to understand that there was a great mystery hidden in the alphabet: ‘I am the alpha and the omega,’ (Rev. 1:8 and 22:13)\(^{17}\) and ‘Not an iota, not a dot, will pass from the Law until all is accomplished’ (Mt. 5:18).

In response to his prayers for his understanding to be opened to this mystery, he was granted a vision in which he stood on Mount Sinai and saw the lordly power (δεσποτικόν κράτος), from which he heard and learnt about the letters. This same power, or an undetermined ‘untaught teacher’ (ἀδίδακτος διδάσκαλος), starts by explaining the relation between στοιχεῖα and γράμματα:

στοιχεία λέγονται ταῦτα τὰ γράμματα, οὐχ ὅτι στοῖχον τινα καὶ τάξιν ἀποτελοῦσιν, ὡς οἱ μάταιοι τῶν Ἑλλήνων σοφοὶ ἐνόμισαν, ἀλλ᾽ ὅτι τῶν στοιχείων τῶν κτισμάτων τοῦ κόσμου τοὺς τύπους καὶ τὰ σχήματα ἐν ἑαυτοῖς τύπους καὶ τὰ σχήματα ἐν ἑαυτοῖς. These letters are called ‘elements’ not because they evince some elemental sequence and order, as the silly scholars among the Greek thought, but because they contain in themselves and they trace (ὑπογράφουσι) the imprints (τύπους) and configurations (σχήματα)

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15. Qur’ān 6:76–79.
toῖς ἔχουσι καὶ υπογράφουσι.

The elements that build this universe.¹⁸

A few lines later, after giving some examples, he explains that such a mystery was carved precisely in the Greek letters so that the former idolaters would acknowledge and submit to god-worship. Since ‘every human hand which by writing imprints these letters (γράφουσα τοὺς τύπους τῶν γραμμάτων), thereby retraced/ratified (ὑπέγραψε) and confirmed, either willingly or unwillingly, that the universe was not uncreated as it seemed to the atheist among the Greek sages, but that there is the Divinity, and that it made (ἐποίησε) in the beginning heaven and earth…’ Then, after giving a Genesis summary, and after reminding us that Christ himself is the alpha and omega, he explains a little further the process of creation:

This alphabet in its apparent simplicity contains the mystery: it teaches us, through the configurations and the numbers of its elements, the descent of the word (λόγος) of God from heaven.

Then the author goes on to give a list of all the other points of Christian doctrine taught by the individual letters, a detailed elaboration which actually fills the rest of the book.

I have highlighted the association to the numbers, which must rank among the first such texts in Greek literature, where attention to the alphanumeric duality of the στοιχεῖα is drawn in this explicit way. The ‘elements’, according to it, have an intrinsic ‘number’ which is taught by the alphabet.

Later and throughout the treatise, it becomes hard to discern how the author chooses when to use γράμματα or στοιχεῖα. Mostly γράμματα is used in the many instances in which the shape of the written letter is being discussed, but cf. §25, when the author asks about God:

Ποῖον τῶν κτισμάτων ἢ τῶν στοιχείων ἢ τῶν γραμμάτων ἐστὶ κύριος;

Over which of the creatures or elements or letters does he rule?

In §20 it is said of the letters: θεοτύποτα τυγχάνουσι καὶ οὐδεὶς ἀνθρώπων ἢ φιλοσόφων ταῦτα διετύπωσεν, ‘they are stamped/modelled by God, and there is no man or sage who has stamped them.’ We could almost translate, ‘they are typed by God,’ and in doing so, we are reminded of similar images in Philo’s writings, all about divine printing or divine typography.

22 or 24 Letters

Another remarkable novelty we find in ML is the frequent occurrence of the feminine noun ἀλφαβήτος, used again and again as a sort of independent entity. In this regard, a puzzling feature of this work is how the author chooses to dismiss rather offhand the letters χ and ψ, and thus to deal with a 22-letter alphabet, just like the Hebrew. Indeed, one of the points of contact with the Jewish mystical tradition is the assignment of correspondences between the 22 letters and the 22 works of God, as recounted in the *Book of Jubilees* mentioned above.

In the end, the doctrine becomes rather puzzling between the rejection and the adoption of Hebrew and Greek letters and their respective interpretations and overlapping correspondences. This unclear borderline between the two traditions, as well as its doctrinal implications, has been fully appreciated by Stroumsa,¹⁹ who also confirms several of the developments I shall be discussing in later pages.

**Apocryphal Gospels**

This Hebrew-Greek alphabetic melange is found again in some of the apocryphal gospels, in which the ‘alphabetic’ nature and wisdom of Christ is brought out in a remarkable way. In the *Infancy Gospel of Thomas*, a child Jesus challenges several school masters about the meaning and power of the letters of the alphabet, ‘If you are indeed a teacher, and if you know the letters well, tell me the power of *alpha* and I will tell you that of *beta*,’²⁰ and also, ‘Hypocrite! How dare you teach the *beta*, when you have not even known the *alpha* in its original nature (κατὰ φύσιν)?’²¹

Immediately after, Jesus adds some more detail,

‘Listen, teacher, and observe the disposition (τάξις) of the first letter (στοιχεῖον), how it has two guiding strokes and a middle stroke crossing both lines which you see, how they converge with the top projecting and turning back as dancers (χορεύοντας)...’²²

The puzzling description of the letter seems to refer to a cursive technique of joining

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the three constituent movements of the capital Alpha.\textsuperscript{23} The mention of the ‘dancing’ strokes, which has particularly baffled interpreters, does not look so strange if we recall the associations with dance found in the first chapter.\textsuperscript{24} We must likewise observe here, as the meaningful recurrence of a trait, the notion of the alphabet in its pedagogical dimension, and the letters as a preserve of childhood. This association, which is so obvious within the practical context of schooling, acquires here, in the narrative of the childhood of the Logos incarnate, a remarkable symbolic dimension.\textsuperscript{25}

Similar exchanges are found in the Arabic Infancy Gospel,\textsuperscript{26} where aleph and bet (not Arabic, but Hebrew letter names in spite of the context) substitute the Greek letters, and in a number of other sources which attest to a complex and early transmission.\textsuperscript{27}

It is interesting that there is no mention of any such text in the Mysteria litterarum; perhaps this could be considered a safe indicator that its text predates the infancy gospels, but the dating of these works is very uncertain, possibly as early as the second century, with variants in different languages found until the ninth century and later.

A Spiritual ABC in Monastic Literature

Another later text related indirectly to these gospels is a peculiar alphabetic acrostic found in monastic correspondence, a list of virtues and vices that was used for meditative introspection as part of the teachings of religious communities, in particular as used by the hermit Barsanuphius (c. sixth century) to educate his disciples.\textsuperscript{28} The sacrality inherent to the στοιχεῖα was an integral part of this method, and it was taken for granted with all its connotations. Because στοιχεῖα meant letters and sounds as well as cosmic elements, their combination was understood to create a meaningful universe.\textsuperscript{29} By relating every letter-element to God, Barsanuphius was sacralizing his teaching. The use of the alphabet was in itself a sacramental practice, punctuating the ascetic progress, or an itinerary through the stations of the spiritual life.

In order to explain more satisfactorily the intension of the concept of such letters,\textsuperscript{30}

\begin{itemize}
  \item \textsuperscript{23} Ehrman and Plese, \textit{The Apocryphal Gospels}, 1094.
  \item \textsuperscript{24} See above, p. 29.
  \item \textsuperscript{25} See above, p. 36.
  \item \textsuperscript{26} Also called \textit{Syriac Infancy Gospel}, §§48 and 49. See also the Arabic text in H. Sike, ed., \textit{Evangelium infantiae, vel Liber apocryphus de infantia Servatoris} (apud Franciscum Halmam, 1697), 144ff.
  \item \textsuperscript{28} B. Bitton-Ashkelony, ‘Counseling Through Enigmas,’ chap. 5 in \textit{The Monastic School of Gaza}, by B. Bitton-Ashkelony and A. Kofsky, Supplements to Vigiliae Christianae 78 (Brill, 2006), 119.
  \item \textsuperscript{29} \textit{Ibid.}, 119–20.
  \item \textsuperscript{30} I use the term ‘intension’ both in its Scholastic and logical sense, referring to the intensity of semantic compression and to the sum of the attributes contained in the word (\textit{OED}, s.v.).
\end{itemize}
Bitton-Ashkelony makes use of a Hebrew binomial prominently attested in later times, the expression *otiyot yesod*. Meaning literally ‘letters of foundation’, this is how the twenty-two letters are once and again called in the *Sefer Yetzirah*; given the semantic correspondence, what we have in her expression is quite possibly *an original and native Hebrew translation of our stoicheia.*
Chapter 5

Hermetica, Magic and Gnostic Sources

From around the same time that the four canonical Gospels and the Pauline epistles were being recognised as authoritative in the second century AD,¹ we have the first evidence of the Greek writings attributed to Hermes Trismegistus,² a hybrid Egyptian-Greek mythical figure which represents the very rich and complex intellectual and religious landscape of late Hellenistic Alexandria, including the coexistence and multi-layered relations between Egyptian, Greek and Roman religions, Judaism and a burgeoning Christianity, so much so that the Hermetica, as this literature came to be called, has been viewed as a direct response to this very complex milieu, or more specifically as a result of the cross-cultural exchange and dialogue between Greek and Egyptian symbolic universes,³ a cultural and intellectual exchange much older than what took place during the Hellenistic period, and thus ultimately inextricable in historical terms.⁴ Hermetism has also been considered an example of the attempt to retain both philosophy and religion, and in this it has been compared to the writings of Neoplatonists and Neopythagoreans.⁵

Originally a collection of philosophical and soteriological contents, the Hermetic

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² Hermetic collections of some kind circulated as early as the second or third centuries. See B. P. Copenhaver, Hermetica: the Greek Corpus Hermeticum and the Latin Asclepius (Cambridge: Cambridge University Press, 1992), xlii.
⁴ Ibid., 80.
literature grew over the centuries to include an enormous and uneven body of works which includes many astrological, magic and alchemical works of all origins, including eventually Latin and Arabic works. Two major strands are usually distinguished in this literature: one more ‘practical’, ‘magical’ or ‘theurgical’, and one more ‘theoretical’, ‘philosophical’ or ‘theological’, but the boundaries are difficult to decide, and the evidence seems to indicate that the two kinds of writings were related aspects of a single practical spiritual way, and that the dichotomy between technical and philosophical Hermetica is a modern classification.

In the following pages, I will be taking into account the larger selection of Hermetica found in the Colpe-Holzhausen edition, which includes the Stobaeus fragments and some Coptic and other material, but I shall draw mainly from some passages of the Corpus Hermeticum and the Asclepius where there is question of the elements and of the power of phonemes.

First, however, I shall take the opportunity afforded by the Hermetica to look into the character of their eponymous deity, starting from the Greek myth which is related to this research very deeply and in many ways.

Who is Hermes?

Whereas the names of most Greek gods have fallen into disuse and are relegated to mythological specialised literature, the name of Hermes has shown an extraordinary persistence through the centuries, partly due to the development of the Hermetica, but

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6. I shall use here a wide meaning of ‘Hermetism’, including not only the philosophical Hermetica and its commentaries, but allowing also for later non-Greek sources, alchemical, magical and others, and I shall reserve for early modern material the useful terminological distinction found in W. J. Hanegraaff, Dictionary of Gnosis & Western Esotericism (Leiden: Brill, 2006), ix-x (hereafter cited as DGWE). Cf. also in this regard the important caveat in van Bladel, The Arabic Hermes, 17-22.


11. Hereafter CH, a group of eighteen Greek treatises historically considered as a distinct body of writing, Copenhaver, Hermetica, xxxii.

12. This dialogue, preserved entirely only in Latin translation, was for centuries the only available representative, the ‘tip of iceberg’, of Hermetic literature in Europe; see I. Parri, ‘Tra ermetismo antico ed ermetismo medievale: l’Asclepius,’ in Adorare caelestia, gubernare terrena. Atti del Colloquio Internazionale in onore di Paolo Lucentini, ed. P. Arfé, I. Caiazzo, and A. Sannino (Turnhout, 2011), 53.
also from the very original nature of the god.\textsuperscript{13} Indeed, this enduring power of Hermes is as clear testimony as could be to the attributes of the god, and even to his metallic symbol, quicksilver, whose ‘mobility makes it especially suitable for transformations,’ such as in its unique capacity to form amalgams with most other metals.\textsuperscript{14} The image of Hermes amalgamated into other traditions to the point that over the centuries he became identified, among others, to the prophets Moses and Elijah or to Enoch,\textsuperscript{15} to the Egyptian god Thoth,\textsuperscript{16} to St Paul of Tarsus,\textsuperscript{17} and to the Islamic prophet Idris.\textsuperscript{18}

In the pre-modern Arabic world in particular, attributing a work to ‘Hermes’ was to ascribe it to an extremely ancient wisdom transmitted from many centuries ago, long before the revelation of Islam, but at some point in history, in early classical Baghdad, the ‘thrice-great’ Hermes became ‘the triplicate Hermes’ (Ḥirmis al-muthallath).\textsuperscript{19} Subsequent references to ‘Hermes’ sometimes deal accordingly with one of three different individuals: ‘the first all-wise Hermes lived in Egypt before the flood, and is identical with Enoch; the second Hermes lived in Babylon and revived the sciences after the flood; the third Hermes is, once again, in Egypt. He taught alchemy and passed on his wisdom to Asclepius. This third Hermes corresponds to the Hermes of the Corpus Hermeticum.’\textsuperscript{20} However, true to the character of the god who moves at ease across boundaries, this triple distinction was far from consistent through the middle ages.

Going back to the origin, there is evidence of the name of Hermes in Greek from Mycenaean inscriptions, and the origin of the name refers clearly to a specific object, the ἕρμα, a cairn or heap of stones used to demarcate boundaries.\textsuperscript{21} Hermes is primarily a god of boundaries and intersections, and only later the consecrated messenger (ἄγγελος) of the gods. He was born at dawn, further emphasising his liminal nature,

\begin{flushleft}
\textsuperscript{13} Cf. the current use of ‘hermeneutics’; see W. Burkert, Greek Religion, trans. J. Raffan (Oxford: Blackwell/Harvard University Press, 1985), 158.
\textsuperscript{14} P. Enghag, Encyclopedia of the Elements: technical data, history, processing, applications (John Wiley & Sons, 2008), 797, includes a reference to Vitruvius, 7,8, the first recorded mention of amalgamation.
\textsuperscript{16} This is the interpretatio graeca, Herodotus, 2, 67; see Fowden, The Egyptian Hermes, 22ff.
\textsuperscript{17} Acts 14: 12, and comment in Cramer, Catenae, 235, ‘he was taken for Hermes by the unbelievers, because of his command of speech (λόγος).’
\textsuperscript{19} van Bladel, The Arabic Hermes, 121-63.
\textsuperscript{21} Burkert, Greek Religion, 156-7.
\end{flushleft}
and as patron of trade, he mingles with mortals and immortals alike.²² From very early times, his most common representations were ithyphallic figures, initially placed on top of cairns, and later incorporated into single stone pillars, many of which are preserved, and which occasionally evolved into square pillars devoid of any obvious sexual association.²³ These pillars, regardless of their geometric abstraction, were still called Hermes (whence the English 'herm'), and they retained the connotations combining demarcation, communication and generative power. It is not hard to see how in all these aspects the association with language is natural, but instead of dwelling on this symbolism, I would like to examine in detail a passage in Philebus which seems to sum up very neatly, through the intervention of Theuth (Thoth, as the Egyptian Hermes), the complex and wide-ranging significance of Hermes for this research.

Thoth and the Letters in Philebus

The context of this passage is important. It is introduced as one among other examples (like music) of a ‘doctrine of principles’ which is both epistemological and ontological—a ‘tale of the people of old who were superior to us and living in closer proximity to the gods, that whatever is ever said to exist consists of one and many’ (16d1)—explaining how knowledge and cosmic order are enacted ‘by the action of the One structuring the indeterminate plurality of the Dyad.’²⁴

When someone, whether some god or even divine human—tradition in Egypt reports that this someone was Theuth—observed that vocal sound (φωνή) is unlimited (ἄπειρον), he first observed that the vowel sounds (φωνήεντα) in the unlimited were not one but many, and again that others partake not of voice (φωνή), but of some sound (φθόγγος), and that there are a certain number of those; and he set apart a third form of letters, which we now call stops (άφωνα). After that, he distinguished the voiceless stops (τά ἄφωνα καὶ ἄφωνα καὶ σκότων καὶ τὰ μέσα κατὰ τόν αὐτὸν τρό-

23. Burkert, Greek Religion, 156.
When he had grasped their number, he applied the name 'letter' (στοιχεῖον) to each one and all together. And observing that none of us would ever learn (μανθάνω) one apart by itself (ἐν αὐτῷ καθ’ αὑτὸ) without all of them, and having reckoned in turn that this bond was one (ἕνο) and made all these [letters] somehow one (ἑνα) and made all these [letters] somehow one (ἕνα), he pronounced it the ‘art of letters’ (γραμματικὴ τέχνη), as being one [art] set over them.²⁵

### Minimal Sketch of Ancient Greek Phonology

The twenty-four letters were classified in Greek grammar as seven vowels (φωνήεντα) α ε η ι ο υ ω and seventeen consonants (σύμφωνα) β γ δ ζ θ κ λ μ ν ξ π ρ σ τ φ χ ψ. These were in turn classified as eight semivowels (ἡμίφωνα) ζ ξ ψ λ μ ν ρ σ and nine voiceless (ἄφωνα) β γ δ κ π τ θ φ χ, of which three are smooth (ψιλά) κ π τ, three rough (δασέα) θ φ χ, and three medial (μέσα) β γ δ.²⁶

It is not quite clear how closely Plato meant to remain to the linguistic classification sketched above, and it is not of much consequence to my present argument, though other contexts will afford the opportunity to mention it later. I also shall not go into the obvious and significant bearings that this extended passage has on the theory of the ideas and their liminal status, but I will draw attention to the fact that the officiating deity is Theuth, identified traditionally with Hermes, and by Ficino more specifically with Hermes Trismegistus.²⁷ The invention of the alphabet, or more specifically the phonetic repertoire of the Greek language,²⁸ as a selection or recognition of elements from a continuum is naturally ascribed to the god of language and communication. It is important to note too the emphasis on the delimitation—setting boundaries—as the method to establish the elements of language that will make possible learning

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The elements in effect μαθήματα, ‘mathematicals’, and making all knowledge derived from the alphabet ‘mathematical’ in a way.

‘A certain number’ has to be recognised in the continuum, which then becomes an arithmeticised set of infimae species or intelligibilia prima. Phoneme and number thus stand together, inextricably joined at the root of language, and the same is applicable to music—it will be remembered that the invention of the lyre is also attributed to Hermes.²⁹

Two lexical items of note are the use of διεστήσατο, ‘set apart’—a ‘demiurgic’ verb often used in the cosmogony of Timaeus—in establishing part of the alphabet, and the recognition of the unitary bond (δεσμός) which corresponds to our unitary concept of an alphabet or a complete system.

Among the epithets of Thoth in Egyptian literature are found ‘Lord of the words’, ‘The one with great Spell craft’, ‘Lord of the sacred words’ and he who ‘created the world by thought and utterance.’ I shall now move on to examine a few passages of the Corpus Hermeticum where these and the above facets of Hermes can be discerned again.

The Creation Elements in the Hermetica

There are approximately forty occurrences of the word στοιχεῖον/elementum in the CH and the other Hermetica considered. Most of these refer to the four elements of the material world, to their origin and cosmological status.

The first example is found in Poimandres (CH I), 8,³⁰ where the origins of the elements is discussed.

The elements of nature—whence have they arisen? [...] And he answered: ‘Nature, by the will of god having received the logos, having observed the beautiful cosmos and imitated it, thus being made itself a cosmos through its own elements and its progeny of souls.’³¹

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³⁰. I cite following the Nock-Festugière text when possible, otherwise Colpe-Holzhausen.

³¹. I follow Holzhausen’s reading; see his translation, Corpus Hermeticum Deutsch, 13, and more specifically J. Holzhausen, ‘Natur und Gottes Wille im Hermetischen Traktat ‘Poimandres’’, Hermes 120, no. 4 (1992): 485, where Büchli’s reference to Timaeus 48 is noted, quite in line with my observations above.
The correction introduced by Holzhausen (ἡ φύσις λαβοῦσα instead of ἥτις λαβοῦσα) solves satisfactorily longstanding textual problems, and it brings to light neatly the relation between the supernal logos and the στοιχεῖα, once again allowing for an alphanumeric interpretation. Here is an alternative and strictly valid translation: ‘The letters of nature—whence have they arisen?’ [...] ‘Nature, by the will of god, received the Word, observed the beautiful cosmos and imitated it, thus becoming itself a cosmos through its own letters and its progeny of souls.’

If the metaphysical model for creation is a word or speech or language, it is only to be expected that its component parts are letters or sounds. In an analogous way, we could also translate λόγος as ‘reckoning’ or ‘calculation’—exactly as in the calculations made by a craftsman during the creative process—and the στοιχεῖα would be the ‘numerals’ or simply the ‘numbers’ of the cosmos. The similarity with the intermediary role of the λόγος in Philo is quite clear.³²

It is important to note that the above text seems to imply the notion of a set of ‘beautiful’ or heavenly elements which would have as counterpart the material elements. In fact, this implication is unfolded and made explicit in other passages where there is question of τὰ ἀνωφερῆ and τὰ κατωφερῆ στοιχεῖα, the ‘ascending’ and the ‘descending’ elements, or simply the ‘upper’ and ‘lower’ elements. In most contexts,³³ including some passages of the CH,³⁴ these terms refer to the pairs of fire-air and water-earth respectively, meaning more precisely ‘ascending’ and ‘descending’, but in this passage (I, 10), as in some other similar contexts, there is a clear distinction between two sets of elements, superior and inferior. A few lines after the above quotation, the material elements are in fact described as τὰ ἀλογὰ τὰ κατωφερῆ—they are logos-less and inferior elements. Another mention of the inferior elements is found further down in I, 11, and also in Asclepius where the contrast between the elementa inferiora and superiora is found in sections 9 and 10.

This doctrine is later found explicitly in Aquinas,³⁵ in univero elementa superiora dicuntur esse ut forma inferiorum, ‘the higher elements are said to be in the universe like a pattern for the lower ones,’ and it is exactly what is adumbrated by a contemporary philosopher who, elaborating on a passage of Theaetetus, says, ‘We must first discover the noetic elements, the universal letters ABC, and the universal system of the alphabet.’³⁶

³³. E.g. Cornutus (ca. 60 AD), De natura deorum, 48, 14.
³⁴. E.g. XIII, 6, and fragment 26.
³⁵. Qu. disp. de veritate, 1 qu.13, art. 5.
Magic Phonemes

In treatise XVI of the CH we find for the first time in our survey another facet of the stoicheia in what came to be known as voces magicae, voces mysticae (‘magic’ or ‘mystical utterances’) or nomina barbara (‘foreign names’). While addressing his interlocutor, Hermes explains how the translation of this treatise into Greek would render it inefficacious, since ‘the very quality of the speech and the (sound) of Egyptian words have in themselves the energy of the objects they speak of,’ whereas ‘the Greeks have empty speeches ... that are energetic only in what they demonstrate.’ ‘We, by contrast, use not speeches (λόγοι), but sounds (φωναί) that are full of action (ἔργα).’

The Egyptian language is here presented as a ‘primordial language’ whose sounds correspond directly to reality, independently of their semantic import, and the utterance itself is assigned a power which seems to bear no correspondence with the meaning of the words. The hermeneutical complication introduced by the fact that this text is preserved only in Greek has naturally been noted and commented upon.

Earlier in Greek history, from around the fifth century BC, there is evidence of similar formulas of legendary foreign origin, the so-called ‘Ephesian letters’ (Ἐφέσια γράμματα), and of ‘meaningless names’ (ἄσημα ὀνόματα), deemed to possess apotropaic powers. Under another label, defixa nomina, they are common in amulets and talismans, both pagan and Christian, and in the also early attested defixiones, curse tablets, ‘inscribed pieces of lead intended to influence, by supernatural means, the actions or the welfare of persons or animals.’


38. See Corpus Hermeticum Deutsch, 200–201, and also Dieleman, Priests, Tongues, and Rites, 4. For possible Jewish influence, see Bohak, ’The Impact of Jewish Monotheism,’ 8ff.


Magical Papyri

All those powerful unsemantic utterances are a major component of what has come to be called generically the 'Magical Papyri', a collection of very early texts in Demotic, Coptic or Greek, preserved in Egypt and representing very clearly the Hellenistic syncretism between Egyptian, Greek and Jewish religions. As with Hermetism in general, they are still associated primarily with Greek culture, and still often referred to as 'Greek Magical Papyri', in spite of the recurrent coexistence of Greek and Demotic texts on the same pages, which attests to a very developed synthesis between Egyptian and Greek literature.

It may be useful to point out that this 'influence by supernatural means' is not quite so 'supernatural', but rather 'natural' within the worldview under study in the preceding pages; or perhaps what should be made clear, in due fairness to our contemporary views, is that the ancient concept of nature was more 'supernatural' altogether. The power of the phonemes of a given 'primordial' language—which could be other than Egyptian—is a concomitant of the essential correspondence between human language and cosmic language.

These different kinds of magical unsemantic utterances are also related directly to the Greek literary texts comprised by the term τεχνοπαίγνιον—all manners of wordplay and jeux d’esprit, including acrostics, palindromes and pangrams—as has been observed by Luz in her comprehensive monograph.

The main traits of these magical formulas are readily apparent in the several epithets applied to them which we have given above. That they are called voces refers to the importance of their enunciation: they are normally to be uttered aloud, even though in some exceptional cases a personal silent ‘saying’ is asked for. This may partly explain why the vowels occupy such a prominent place in this magical literature, reminding us of the special cosmological status accorded to vowels by the Greek grammarians. We find in the papyri, for instance, instructions for the recitation of ‘the heptagram’, the seven vowels αεηιουω in many complex variations.

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44. A later stage of the Egyptian language.
46. See Betz, _Magical Papyri in Translation_, xlv, for mention of Greek and Hebrew as two examples.
47. A pangram or holoalphabetic sentence is a sentence using every letter of a given alphabet at least once.
50. See Betz, _Magical Papyri in Translation_, 190.
Voces, like the Greek φθόγγοι ἐναρμόνιοι ‘harmonic utterances’, also indicates that they are not necessarily words, but merely vocal sounds, ἄσημα, unsemantic, as shown by another epithet. Sometimes they are instead called γράμματα, letters, referring to the graphic aspect which is such a remarkable feature of the magical papyri, where page after page is filled with all sorts of geometric letter arrangements: mirroring layouts which play on palindromes of varying extension, diminishing lines which form pyramids and triangles, and many other graphic devices.

Another remarkable use of the vowels, and an additional example of the significance of the symbolism of alpha and omega is the following array which in the original concludes with the exclamation ‘Jesus Christ, help!’

With regard to the pairing of alpha and omega, and further to my previous comments, it has been noted that among the most distinctive features of the magical papyri is a strong tendency towards ‘circularity’, towards closing strings of letters in the manner of a palindrome, joining beginning and end to thus symbolically encircle and subdue the object of the spell. Once again, as with the acrostics, it can be seen that the magic power (in other contexts cosmogonic) is related to a ‘catalogue’ of the creative elements, to reciting as one would recite the alphabet, without omitting any element. There seems

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52. See Dornseiff, Alphabet, 63–7, and Luz, Technopaignia, 215. The following example is from Suppl. Mag. 7.
55. ibid., 216, with a reference to the Ouroboros.
to be a creative power in the self enclosing totality of the system of elements. In the case of Christ it seems obvious, as perceived by the author of the Mysteria litterarum, that when he is called alpha and omega, the remaining letters of the alphabet are to be understood as well—he is all the letters.

The recourse to the Christian invocation, insofar as it has to do with an organised religion, can be related to the epithet of mysticae, for this adjective refers to the mysteries of Greek and Roman religion. The religious status of magic, between marginal superstitious and mainstream respectable practice, cannot in most cases be decided clearly, especially in the Egyptian context in which some of the practices later associated exclusively with magic were part of the priestly duties.\textsuperscript{56} Initiation, religion and magic meet inextricably in the use of these ‘utterances’ and ‘letters’.

That they are ‘Ephesian’ typifies their being perceived as foreign, as alien. According to many scholars over the centuries, it is in great part due to this feature that they retain an aura of mystery and that their utterance commands awe and reverence. ‘Ephesian’ also, and more particularly, meant ‘Eastern’, or at the very least open to the East, and indeed, one of the most repeated linguistic traits of these voces is the abundance of Semitic word endings like -\textsuperscript{η}λ and -\textsuperscript{ωθ}.\textsuperscript{57} When they are called defixa, what is emphasised is their irrevocability, for there is no reversing an utterance, and in this we find again the image of the seal and the fixity of its imprint. Related meanings of defigo include ‘to bind’ and ‘to impress’. In a primary and very practical sense, the spells relate to a menial action: to fix or attach something with nails, stakes, ‘to plant’ something, like determining boundaries on a field (defigere terminos), or like carving letters on a monument (defixa monumentis nomina).\textsuperscript{58}

The Twenty-Four Alphabetic Names of Gods

That they may be called also ὀνόματα, ‘names’, refers to how the utterances of power can be considered as concepts which are simultaneously viewed in their elementary quality. In Orphic literature, as also in Jewish rabbinical texts, it is not uncommon to find long lists of the names of God or a god, or the names of Metatron.\textsuperscript{59} In the papyri we

\textsuperscript{56} See E. Suárez de La Torre, M. Blanco Cesteros, and E. Chronopoulou, ‘A la vez igual y diferente: notas sobre el vocabulario “religioso” de los textos mágicos griegos,’ in Estudios sobre el vocabulario religioso griego, ed. E. Calderón Dorda and S. Perea Yébenes, Monografias de Antigüedad Griega y Romana 49 (Madrid–Salamanca: Signifer Libros, 2016), 210, 228.

\textsuperscript{57} Respectively the Hebrew name of God, as in Isra-El, and the Heb. feminine plural ending as in Rehov-ot; see Luz, Technopaignia, 214.

\textsuperscript{58} OLD, s.v. defigo.

\textsuperscript{59} See Odeberg, 3 Enoch, I, 170 and II, 160, but these lists go back to at least the second millennium BC in both Indo-European and Semitic texts; cf. J. Myerston, ‘Divine Names in the Derveni Papyrus and Mesopotamian Hermeneutics,’ Trends in Classics 5, no. 1 (2013): 74–110, for refs. to Enuma Elish and
have one particular example where the name-letter conjunction comes into focus very strikingly, namely in a fifth-century love charm\(^{60}\) where the ‘daimons’ are conjured by ‘the true one’ named with an alphabetic acrostic list of names, i.e., twenty-four names, each starting and ending (with two exceptions) successively with the Greek letters; it starts,

\[ \text{Ἀκραμμαχαμαρι Βουλομεντοreb Geniomouthig Ἑνκύκλιε...} \]

\[ Akrammachamari Boulomentoreb Geniomouthig Demogened ... \]

Wortmann calls them the ‘Gods of the Twenty-Four Letters’ and the ‘Twenty-Four Gods of the Alphabet’,\(^{61}\) while drawing attention to the unique nature of this spell, and observing that some of the names, e.g. Θωθουθωθ, read like palindromes, while others are just short of being palindromes, e.g. Φιμεμαμεφ. A fair inference of a hypothetical model for this kind of construction would be an acrostic list of twenty-four palindromes, beginning and ending with each letter of the alphabet.

One final example from the papyri shows clearly the ambiguity and the cosmic status of \textit{stoicheia} which are central to this research. It is a love charm that begins with an impressive letter geometrical arrangement and is followed by this,

\[ \text{'Ἐξορκίζω σε τῶν δώδεκα στοιχείων τοῦ οὐρανοῦ καὶ ἰκοσιτέσσερα στοιχείων τοῦ κόσμου...'} \]

'I adjure you by the twelve \textit{stoicheia} (constellations) of heaven and the twenty-four \textit{stoicheia} (elements) of the world...’\(^{62}\)

We had seen that \textit{stoicheia} could be used for the constellations, but what to make of those ‘twenty-four elements of the world’?\(^{63}\) They are normally four only, or five, but due to a slip perhaps, or due to what was an all too easy assimilation, the number of the letters of the alphabet is transposed to that of the superior elements. The other possibility might be that the ‘world’ mentioned here were referring to an abstract conceptual world, but in that case the contrast between heaven and world would not be easy to explain.

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\(^{60}\) Cologne, Papyrussammlung P. 3323; Wortmann, ‘Neue magische Texte’, 88, 98–9, including photographs of the text. Translation in Betz, \textit{Magical Papyri in Translation}, 308, no. 101; this is not in \textit{PGM}.

\(^{61}\) Wortmann, ‘Neue magische Texte’, 87, 98.

\(^{62}\) \textit{PGM}, 2, XXXIX, 18; Betz, \textit{Magical Papyri in Translation}, 279.

\(^{63}\) ‘World’ is a more apt translation of κόσμος here in contrast to heaven; cf. Jn. 13:1 ἡ ὥρα ἵνα μεταβῇ ἐκ τοῦ κόσμου τούτου πρὸς τὸν Πατέρα, ‘the time for him to depart from this world towards the Father.’
In the context of magical literature, this usage of the 'twenty-four letters' also reminds us strongly of the influential magical materia medica entitled Kyranides, also ascribed to 'Hermes Trismegistos the god', and also exhibiting most of the features mentioned above, wherein stones, herbs, fish and birds are grouped under the Greek letters in alphabetic order. In this arrangement, the letters act as an intermediary ordered array between the 'alphabet in heaven' and the 'alphabet of things'.

Trying to sum up the findings in the papyri and their formal relations to Hermetism, it may be noted that among the most important characteristics of the spells and invocations are their oriental character, the rhythmic repetition of certain words or sounds and the listing, often exhaustive, of the divine attributes, which are all common features of the more 'practical' Hermetica. Letter 'acrobatics', graphic and phonetic, and isopsephic arrangements are found all over the texts and go hand in hand with the above features, as in a display of craftsmanship, of the mastery of order and rhythm, moving from a discursive 'logic of concatenation' to an 'iconic expansive logic', transmitting meaning simultaneously on several levels through the 'semiotic superposition' characteristic of ancient poetry as in Greek calligrams, Roman carmina figurata and all sorts of 'pattern' or 'concrete' poetry.

There is a clear specular relation between the pattern complexity of the magic formula and the complexity of the reality that is to be altered—in one as in the other, the basis of the intelligibility and of the constitution on every level is order, which, as we had found in the first two chapters, is the most prominent of the characteristics of the stoicheia and is directly related to its numeric aspect.

64. D. Kaimakis, ed., Die Kyraniden (Meisenheim am Glan: Hain, 1976), prologue, l. 5.
67. 'The Hermetic authors felt no obligation to respect the boundaries drawn around their writings by modern critics,' Copenhaver, Hermetica, xxxix.
Regarding the relation between Hermetism and these magic texts, there is on one hand the fact that many of the texts are explicitly related to Hermes, and it is true that ‘the magician who intends to enter the mysteries by means of the voice and the name, recognises Hermes Psychopomp and Hermes Thoth as his master, as god of gnosis, incarnation of the logos,’ but beyond the explicit mention of the Graeco-Egyptian deity, there is no way to ignore that all this magical literature is Hermetic in substance: it is after all, and here I refer at once to several previous sections of this work, a communication established by the mediation of language with the purpose of generating change. Such manipulation of concepts and numbers, and the concomitant mirroring just mentioned, as foundations of a method of influencing the world, are very close to the foundation of scientific and religious endeavours, and most likely the reason why at times magic and science, and at times religion and science, have been considered to be two sides of one coin.

Gnostic Writings

As in the case of the Hermetic writings, the label of ‘Gnostic’ developed into an umbrella term that has been considered ‘highly problematic’, ‘obscuring distinctive characteristics’, and finally ‘a term that lost its utility.’ This extreme syncretic ‘Gnosticism’ is however one end of a spectrum ranging between two main meanings: first, one narrow and more strictly historical which is the name given, often deprecatingly, to ancient Christian sects, the γνωστικοί or ‘gnostics’, literally ‘the ones acquainted’ (sc. with God); and second, that broader, problematic and variegated meaning, which ranges from Christian heterodoxy to Orphic, Hermetic, Mandaean, Jewish, and Islamic texts. What most Gnostic writings have in common, and it is

71. See Suárez de la Torre, ‘Himno(s)-plegaria a Hermes en los papiros mágicos griegos,’ 199–201.
72. See Ritoré, La teoría del nombre, 196.
in this that they are related to Hermetism, is in what their name itself points to, a direct approach to ‘salvific esoteric knowledge’ (γνῶσις), to initiatic mysteries. This Gnostic claim to ‘real knowledge’ comes often in the form of a distinctive cosmology, and it is among such doctrinal writings that the alphanumeric symbolism is occasionally found. With the exception of Marcus the Valentinian (second century AD) however, there is nothing like a systematic cosmology, but fragmentary evidence gained mostly from Coptic translations of hypothetical original lost Greek texts, or in some cases of possible Syriac origin.

I shall now comment on passages from two works of the Nag Hammadi Library (NHL), before introducing Marcus’ text. I shall refrain from entering into the details, and especially from trying to make sense of the cosmological complexities of the texts in this section, which are of a bewildering oneiric nature, continually challenging the experts, and which are in general beyond the ken of the present research. I shall instead limit myself to draw attention to the interesting aspects of alphanumeric symbolism found in them.

**Evangelium Veritatis**

The Gospel of Truth, approximately dated between 140 and 180 AD, begins with a so-called ‘Litany of the Word’,

> This is the knowledge of the living book which he revealed to the aeons, at the end, as his letters, revealing how they are not vowels nor are they consonants, so that one might read them and think of something foolish, but they are letters of the truth which they alone speak who know them. Each letter is a complete (thought) like a complete book, since they are letters written by the Unity, the Father having written them for the aeons in order that by means of his letters they should know the Father. While his

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76. DGWE, vii–viii.
78. The followers of Valentinus (d. ca. 160), particularly given to theological speculation, constituted one of the largest and best known Gnostic schools, active throughout the Roman Empire. Marcus and the Marcosians after him should not to be confused with fellow Valentinian and famous heresiarch Marcion of Sinope and the Marcionites; cf. Layton, *The Gnostic Scriptures*, 217ff.
80. This all-important treasury of Gnostic literature was only discovered in 1945, and it was thus unavailable to Dornseiff. About the non-Gnostic contents of NHL, see G. Quispel, *Gnostica, Judaica, Catholica. Collected Essays of Gilles Quispel*, ed. J. Oort, Nag Hammadi and Manichaean Studies 55 (Brill, 2008), 212.
wisdom contemplates the Word, and his teaching utters it, his knowledge has revealed it.\textsuperscript{82}

Most Gnostic texts elaborate profusely on various aspects of the Christic nature, hence on the nature of the \textit{logos} and its relation to God the Father. Particularly interesting here is the clear identification between the incarnate Son of God and a linguistic reality which is not limited to being defined as Word, but also as book and as utterance. The \textit{aeons} (from αἰών, an ‘age, lifetime, era’) constitute ‘an entourage of mythopoetically personified eternal divine attributes’\textsuperscript{83} varying in number and in ontological status in the different Gnostic mythologies. Some speak of 365 aeons; other sources specify eight, twelve or, as we shall see later, twenty-four like the number of letters of the Greek alphabet.

The identification between letters and names which we had encountered previously is here expanded: each letter may be viewed not only as a word and as a name, but also as a book, and more precisely as a living book. They are also clearly distinguished from ordinary vowels or consonants, these are ‘letters of the truth’ or, we might say, symbolic letters.

This is the perfection in the thought of the Father, and these are the words of his meditation. Each one of his words is the work of his one will in the unveiling of his Speech. While they were still depths of his thought, the \textit{Logos}, which was first to come forth, revealed them along with a mind that speaks, the one \textit{Logos} and a silent grace […] Now the name of the Father is the Son […] It is possible for him to be seen. The name, however, is invisible because it alone is the mystery of the invisible which comes to ears that are completely filled with it by him. For indeed, the Father’s name is not spoken, but it is apparent through a Son […] This name does not belong to words, nor does it consist of appellations, but it is invisible.\textsuperscript{84}

Let us retain some of the above cosmogonic statements, rather as an imagery that we may have later occasion to compare: the ‘thought’ of the Father is an intermediary locus where the word/name of the Son is uttered beyond language, for it is ‘invisible’, ‘not spoken’. Like in the previous passage, what stands out here is the affirmation of a symbolic usage of the linguistic imagery.

\textsuperscript{82} I, 22ff.; \textit{Nag Hammadi Library}, 43, highlighting mine.
\textsuperscript{83} Williams, \textit{Rethinking ‘Gnosticism’}, 10.
\textsuperscript{84} I, 37ff.; \textit{Nag Hammadi Library}, 48–50; I have slightly edited Robinson’s in view of the German translation.
Marsanes

*Marsanes* (after the name of a gnostic prophet) is one of the so-called ‘Sethian’ Gnostic treatises in the Nag Hammadi corpus. Probably written in the third century AD, its metaphysics and ritual references have been related to those of Iamblichus. In fact, one of the reasons for supposing that the text is originally Greek is the occurrence of letter symbolism and of ritual nomenclature of gods and angels.

The text of this treatise is very damaged, but fortunately the section devoted to letter speculation is in relatively good condition. In the following lines I try to reconstruct the meaning of a few isolated passages, following mostly Funk’s German rendition.

The soul too has its shape, and of a different kind. The shape of the soul, which came to be on its own, has the following form: the shape is a secondary spherical part around which lies a primary part, ε η ι ο υ, and for the self-begotten soul, α ε η ι ο υ ω. The second shape ε η ι ο υ comes to be through the diphthongs... Know that the sublime ones exist among the vowels, and the diphthongs are next to them... The sounds of the semivowels are superior to the voiceless, and those that are double are superior... They constitute the names of gods and angels, not because they blend with each other according to every form, but in order to produce a beneficial effect.

It would be irresponsible to elaborate much on this text without examining the Coptic original, which is beyond my competence, but what is clear once again is that the internal structure of the alphabet and its phonetic divisions have a cosmological value, in other words, that the classification of the phonemes reflects an ontological hierarchy. In particular, we find here again the combinations of the vowels that we had encountered in the magical papyri, pointing once again to a fundamental relation between phonetics, magic and cosmogony. Further down (29–30), the length of the vowels is also taken into account, and there is question of the consonants in some more detail:

The consonants exist together with the vowels, and indeed as independent too; they are placed before them and after them; they serve as names of the

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85. For the special role of Seth in Gnostic literature, see Lahe, *Gnosis und Judentum*, 283; and Williams, *Rethinking ‘Gnosticism’*, 90–93.
86. NHC X. See *Nag Hammadi Library*, 460ff.
87. *Nag Hammadi Deutsch*, 498.
88. *Nag Hammadi Library*, 462.
89. *Nag Hammadi Deutsch*, 505.
angels; they exist on their own and they differentiate, and they lead and are led by the hidden gods by means of stress, pitch, quiescence and point of articulation; they summon the semivowels...

At this point, it is perhaps possible to start seeing a pattern in the broader distinctions between vowels and consonants. Let us, for the time being, simply retain the fact that the consonants are said to ‘differentiate’, and that in spite of their name of con-sonants, they are metaphysically considered to be capable of certain autonomy.

A few lines below (32–33), there is question of numerical cosmology, with the cosmogonic correspondences of the monad, the dyad, the tetrad and so on, culminating with the decad ‘which has laid bare all things’, and with Eleven and Twelve ‘which have completed the traverse through to the unlimited.’ Due to the state of the manuscript it is not possible to clarify what is the relation between the numerical and the alphabetic series, but I shall have occasion to reexamine this in the following pages.

The vowels are connected to the consonants either externally or internally [...] they were numbered four times, they were engendered three times, and they became twelvefold... (39) Whether he is gazing at the two or he is gazing at the seven planets or at the twelve signs of the Zodiac or at the thirty-six Decans..., whether those in heaven or those upon the earth, together with those that are under the earth... they stand alone...

There seems to be a progression from the abstract alphabetic symbols and the numerical hierarchy to the cosmic correspondences, but as mentioned above the state of the text does not warrant further speculation, and is instead illuminated by similar passages found elsewhere. The Gospel of the Egyptians (NHC III, 2; IV 2) and the Interpretation of Knowledge (NHC XI,1), for instance, contain descriptions of the ‘self-originating Word’, its origin in ‘heavenly Silence’ and its relation to the Son.

Marcus the Valentinian

Marcus ‘the Magician’ (ca. second century AD), morally criticised and doctrinally preserved by Irenaeus of Lyon, and after him by other early church authorities, is customarily viewed as a ‘Neo-Pythagorean’ among Gnostic authors,⁹¹ and is thus an obligated reference for alphanumeric symbolism; this is why in a previous chapter we found him mentioned as a parallel to the speculations of the Mysteria literarum.⁹² It has been the case, however, that most material related to Marcus focused on the

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⁹² Bandt, Vom Mysterium, 83–5.
first part of Irenaeus’ critique in *Adversus haereses* (I, 13–21),³ where there is question of the debauchery of the Marcosians, until Förster’s comprehensive monograph was published,⁴ taking into account the full critique of Irenaeus, his followers, and later Syriac and Arabic sources. I shall make use of Rousseau’s critical edition (1979) to present a slightly modified translation based on Harvey (1857), all in the light of Förster’s monograph.

Combining the pranks of Anaxilaus with the craftiness of so-called magicians, he gives the impression of accomplishing wonders.⁵

Anaxilaus of Larissa was a Pythagorean philosopher famous for his magical exploits, and particularly for a sort of alchemical transmutation.⁶ It may be noted how the first influence in Marcus’ picture is that of the παίγνια, which has a general meaning of divertissement but which can refer more specifically to word plays, as in the term τεχνοπαίγνιον which we had already encountered.

Starting from the general Gnostic principle that the upper world has its reflection in our lower world, Marcus develops a complex cosmogonic system based on the initial silence, on words, ‘syllables’ and letters arranged in groups of varying quantity. ‘When Father, who is without a father, unthinkable and immaterial in substance, who is neither male nor female, first wished that the unspeakable be spoken and the invisible be given form, he opened his mouth and brought forth the Word similar to himself.”⁷

The utterance of the name developed in the following manner. He pronounced the first word of his name, which is a principle: it was a combination of its four phonemes. He joined a second to it which was also a combination of four phonemes. Next he pronounced the third: this too consisted of ten phonemes. And the combination that he pronounced after these had twelve phonemes. So the pronunciation of the

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³. That is, starting from I, 7 in Harvey’s numeration. I follow henceforth Rousseau’s sectioning.
⁵. I, 13, 1.
whole name consisted of thirty phonemes, but only four combinations, and each of the phonemes had its own letters, its own tracing, its own pronunciation, shapes, and representations.

This ‘alphabet’ of thirty letters, which Marcus considers the sum of the aeons of the pleroma, is arrived at through different additions. We may remember that the full Greek alphanumeric system used twenty-seven signs: the twenty-four letters plus the three episema or supplementary signs, digamma ϝ (or stigma ς), qopa ϕ, and sampi ϡ. If we add these three and then also count the three existing double letters (ζ, ξ, ψ) as doubles, we arrive at thirty. Alternatively, it is explained later that ‘the name of Saviour which can be uttered, that is, Jesus (Ἰησοῦς), has six letters, but his name which cannot be uttered has twenty-four letters. The name “Christ the Son” (Υἱὸς Χρειστὸς) has twelve letters; but the name of Christ that is unutterable (ἄῤῥητον) has thirty letters. And for this reason he asserts that he is alpha and omega in order to indicate the dove (περιστερά), since this bird had that number.’ Indeed, by isopsephy, the numerical value of περιστερά is 801, like the sum of alpha and omega—this equivalence is often used by Marcus and it is found in other similar literature.

The defining characteristics of each στοιχεῖον, such as its tracing and shape, had been mentioned in the grammatical scholia, and here again, as in previous texts, they are given a cosmological significance that I shall not expand on at the moment.

Another remarkable image of Marcus’ cosmology is the famous passage regarding the ‘Body of Truth’, wherein the Tetraktys personified, who has been revealing all these matters to Marcus, speaks thus:

98. See above, p. 41, and Förster, Marcus Magus, 198–99.
π, κνήμας καὶ ο, σφυρὰ λ καὶ ξ, legs; lambda and xi are her ankles; mu and nu are her feet.\(^9\)

This reduction of the twenty-four letters to twelve duplets, in this case following the atbash order,\(^10\) is a variation of the Hellenistic astrological correspondence which followed the albam order.\(^11\) Both are kinds of melothesia, the correspondence between parts of the body and zodiacal signs.\(^12\) The alphabet would seem to perform a mere numerical function as an ordered set that lends itself to distributive ordering, but given the cosmological background, it is rather safe to assume that something more was at play, and that the alphabet here performed yet again a fully alphanumeric function. Through the alphabet, that is, through the elements, the ‘human’ figure is tallied with the duodecad of the heavenly sphere.\(^13\)

Every few paragraphs along these explanations, Irenaeus takes an opportunity to condemn Marcus and even openly mock and ridicule the convoluted doctrine. He does so after this alpha-anatomical passage, and then continues: ‘When that Tetrad had spoken these things, Truth looking at Man and opening her mouth uttered a word. The word became a name, and the name was the one that we know and speak, Christ Jesus.’

Jesus is defined in many ways, interchangeably with his name and many numerical possibilities: ‘the name of Jesus, according to the number to which the letters correspond, is eight hundred and eighty-eight. And so you have clearly [stated] also the supercelestial origin of Jesus. For this reason the Greek alphabet has eight units, eight decades, and eight hundreds. Thus it reveals the number eight hundred eighty-eight, that is Jesus, who was composed of all the numbers.’\(^14\)

In view of such taxing explications, it is no great wonder that one can occasionally sympathise with Irenaeus’ rants, which unexpectedly can even help us to have a concise look at the exposition, e.g.,

Who will put up with you who confine the Builder, Craftsman and Maker (Κτίστης καὶ Δημιουργός καὶ Ποιητής) of all things, the Word of God, to figures and numbers—now thirty, now twenty-four, now only six—and then chop Him up into four combinations and thirty characters? With you, who reduce to the number eight hundred and eighty-eight the Lord of all things who established the heavens, as if He had become like the alphabet?

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\(^{99}\) I, 14, 3; Unger/Dillon (eds), Against the Heresies, 61.
\(^{100}\) From the Hebrew equivalent of pairing alef-taw, bet-shin, etc.
\(^{101}\) Also named after a Hebrew pairing alef-lamed, bet-mem, etc. or, rather common, α-ν, β-ξ, γ-ο etc. See Dornseiff, Alphabet, 84–6.
\(^{102}\) See Förster, Marcus Magus, 224–25, for references to iatromathematical texts.
\(^{103}\) See above p. 47.
\(^{104}\) I, 15, 2; Unger/Dillon (eds), Against the Heresies, 65.
With you who subdivide into a Tetrad, Ogdoad, Decad, and Dodecad the Father who comprehends all things, but is Himself incomprehensible. With you, finally, who by the multiplications of these numbers explain the Father’s nature, which, as you say, is unutterable and unthinkable?¹⁰⁵

The complaint is essentially on two grounds: first, the seemingly unwarranted complexity, nay, confusion, of the teachings, and second and most important, the perceived metaphysical absurdity, in the proper sense of dissonance, between two levels of reality—‘as if He had become like the alphabet?’

Though it is not my intention to defend the Marcosian doctrine in any way, it must be pointed out that the three names of God used here by Irenaeus refer to professions whose practice is entirely based on design, hence on the use of figures and numbers (σχήματα καὶ ἀριθμούς). Perhaps, invectives aside, if we examine closely an earlier crucial paragraph of the exposition, we can have a glimpse of what this apparently muddled cosmology is conveying in its dizzying symbolism or, as Irenaeus puts it, in its ‘abyss of letters’.¹⁰⁶

At the beginning of I, 14, 2, there is mention of τὰ ὀνόματα τῶν στοιχείων τὰ κοινὰ καὶ ρητὰ, ‘the common and utterable names of the phonemes’, which are called by the revealing Tetraktys by the names of aeons, logoi, roots, pleromes, etc., giving in effect a list of synonyms of στοιχεῖον, making clear that it does not refer to speech in any mere linguistic sense, but that this is about cosmology, and implicitly also that there are some ‘names’ of elements/phonemes which are exclusive and unutterable.

I shall refrain from translating the entire passage, which would take me away from my point now,¹⁰⁷ but there are some additional remarkable outcomes from the careful parsing of the succeeding lines which it will be useful to keep in mind:

• this cosmogony distinguishes carefully four instances of the linguistic image: there is στοιχεῖον and γράμμα, and there is the utterance (φωνή) and the sound (ἦχος).¹⁰⁸ The relations between them span the cosmos, and it is the resonance, as an echo, of a superior kind of phoneme which institutes order (διακοσμεῖ) in the lower world and which generated what had been before the universe.

• the ‘names’ of the ‘letters’ are infinitely divisible internally, meaning that every letter is an infinite in potency.

¹⁰⁵. I, 15, 5, my highlighting; Förster, Marcus Magus, 358ff.
¹⁰⁶. I, 14, 2; βυθός τῶν γραμμάτων.
¹⁰⁸. This was a technical term in Greek phonetics, but in the context there is an obvious implication of its basic meaning of reverberation.
the relations between the four instances mentioned above are stages of transformative processes whereby the world is being regenerated through an exchange between a supernal reality (sometimes called ‘pleroma’) and a lower reality: ‘silence becomes sound’, ‘the invisible name becomes visible...’

Conclusion

Similar to Hermetism in a broad sense of the term, and very closely related to early magical literature, Gnosticism is another offspring of a syncretist age, and at one time or another its historical correspondences with Egyptian religion, early Judaism and, especially, with Platonic metaphysics, have been, and continue to be, brought into scholarly focus and studied in the context of early Christian theology.¹⁰⁹

As I hope to have demonstrated in the preceding pages, a distinct shared domain of these manifestations of Hellenistic religiosity is the cosmogonic and cosmological role of language and numbers, and even more specifically, the alphanumeric entities which can spell, or tell, or calculate a λόγος, which in the current context might easily be translated as an ‘alphanumeric analogy’. Every ‘creation’ at every new level is effected through a λόγος, that is through a mediating reality which is so close to the Creator that it can be said to be its child, and which is so close to the Created that it can be identified with it. This is the foundation of the doctrine of sympathy and its ‘vertical chains’,¹¹⁰ for ‘the name is congenital (συγγενές) with the god, the sound (φθόγγος) is consubstantial (σύντροφος) with the deity.’¹¹¹ The relation is one of mimesis or re-presentation or personation. This intermediate nature is according to the ‘measures’ of the Creator, measures that are interrelated as the letters of the alphabet are. Indeed, according to Plotinus, the logos is not a separate hypostasis, but it determines the relation of every hypostasis to its source and its products, serving as a formative principle from which the lower realities evolve.¹¹²

Moreover, and now with a view to the following pages, it is clear that, from the point of view of the στοιχεῖα, every creation as an utterance or an act of writing implies a change of state and is thus a sort of cosmic alchemical operation. What we have just seen in the Gnostic literature, where the ‘invisible name is made a visible Son,’ parallels clearly Athanasius’ ὁ τοῦ Θεοῦ Λόγος ... ἐνηνθρώπησεν, ὅταν ἡμεῖς θεοποιηθῶμεν, ‘the

Word of God became man so that we might become divine.'¹¹³

In the following pages I shall start exploring the doctrine of alphanumeric cosmology in Islamic scripture, and then proceed to the first non-scriptural Islamic writings which happen to belong to the alchemical tradition.

¹¹³. *De incarnatione verbi*, 54, 3; *PG*, 192B.
Chapter 6

Alphanumeric Cosmology in Islamic Scripture and Exegesis

Introduction

The place of the logos and its elements in Islam is not only similar to what we have seen in the preceding Abrahamic revelations, but the status of language in Islam is as it were further specified and amplified in comparison. As in Judaism and Christianity, the creation of the world is enacted by divine speech, ‘His command (amr), when He intendeth a thing, is only that He saith unto it: Be! (kun) and it is,’ but in addition to this acoustic cosmogony, the imagery of the written word acquires in the Qur’ān an exalted level that in earlier traditions is only to be found in the exegetical literature, not in the scriptures themselves. ‘If all the trees on earth were pens (aqlām) and all the seas, with seven more seas besides, were ink, still God’s words (kalimāt) would not be exhausted.’ When Muhammad received his first revelation, he was asked by the archangel to read; iqra!, ‘read!’ was the first word of Islamic scripture, with the same root as qur‘ān, literally ‘the reading.’ The verses of the Qur’ān are called in

1. Qur’ān 36:82. Unless noted, Qur’ānic translations are mine, following mostly Pickthall, Abdul Haleem or the Study Quran. Sura 36, Yā Sīn, was called by the Prophet ‘the heart of the Qur’ān’.


4. The basic meaning of the root q-r-’ is ‘to gather’, ‘to collect together’ (see Lisān), following the same semantic development of Lat. lego. For a rare ‘semantic’ etymology that gives a perfect cognate of logos by association with the root q-r-n, see T. Mayer, ‘Shahrastānī’s Mafātīḥ al-Asrār: A Medieval Ismaili System of Hermeneutics,’ chap. 8 in The Spirit and the Letter: Approaches to the Esoteric Interpretation of the Qur’an, ed. A. Keeler, S. H. Rizvi, and M. Nguyen (Oxford University Press, 2016), 281. The Hebrew cognate migrah is a traditional alternative name for the Tanakh.
Arabic āyāt, ‘signs’, with the basic meaning of a referent, a symbol, ‘any apparent thing inseparable from a thing not equally apparent,’ from a Semitic root found elsewhere with the meaning of ‘letters’. Followers of the two previous Abrahamic revelations are called in the Qur’ān ‘the people of the Book’ (ahl al-kitāb). It can hardly be a surprise that Muslims developed over the centuries such a great esteem of calligraphy, or that even to these days the recitation of the Qur’ān can enthuse Muslims of all ages around the world, and it will be hardly surprising that Islamic civilization has been described as ‘clearly logocentric’.

Recent overtures in comparative studies of theology and mysticism have been laying bare the deep and very explicit analogies between the ontological status of Christ, kalimatu Allāh, the Word of God, and the Qur’ān as kalām Allāh, the Speech of God. In this regard, and following the main thread of this research, I shall once again start by focusing on the ‘letters’, the elementary alphanumeric components of that ‘Word’ and that ‘Speech’.

Based on the Qur’ānic nucleus of terms related to speech, language, reading and writing in different aspects, Abū al-Ḥasan al-Ashʿarī enunciated the mainstream theological position that ‘God’s speech is uncreated and is coeternal with His essence,’ that ‘it is neither a sensory sound (ṣawt) nor a graphical trace that is manifested in the form of a letter (ḥarf; pl. ḥurūf),’ whereas human ‘sounds and letters are created expressive traces (dalā’il) of the uncreated divine word.’ Far from settling the matter, the theological subtleties involved gave rise to a theological topos, ‘the question of God’s speech’ (al-mas’ala kalām Allāh), or even more specifically ‘the question of letter and sound’ (al-mas’ala al-ḥarf wa-al-ṣawt). Fakhr al-Din al-Rāzī (d. 1209) considered the matter too ‘difficult and subtle,’ but it was treated at length by Abū Naṣr al-Sijzī (d. 1052) in his Refutation of Those who Deny [that God’s Speech Consists of] Words and Sounds. Though mostly polemical in tone, and without entering in any detail into

5. Lane’s Lexicon, I, 135, s.v. ‘-y.
6. The Heb. ot, for instance, has two plurals: otiyot, with the meaning of ‘letters’, and otot, with the meaning of ‘signs’; cf. Klein, s.v.
the consideration of the alphabet, al-Sijzī argued that God’s speech necessarily implies the discreteness of the phonetic elements, that 'the reality of speech is the articulated elocution (nuṭq).’

The Linguistic-Logical Aspect

The triliteral root n-ṭ-q is of particular interest, since it not only refers to language articulated as an uttered reality, in the sense of the phonetic points of articulation (khawārij), but also to the concept of logical articulation, in the Latin grammatical sense of articulatio, in close relation to measure (modus), and in the sense of the linguistic concept of twofold segmentation, which is very close to the central object of this entire research.

With the development of Arabic philosophy, manṭiq was used to translate the Greek λογική for the discipline of reasoning or discerning the laws of truth. Consequently, later authors speak of al-nuṭq al-khārijī, the outer articulation, namely speech (lafẓ), and of the inner articulation, al-nuṭq al-dākhilī, namely ‘understanding and perception of the universals’ (al-fahm wa-idrāk al-kulliyāt). ‘The reality of language (nuṭq) is that it is utterance which surrounds and holds fast meaning in the manner of a belt (niṭāq).’ It was considered general knowledge that ‘language (nuṭq) is discrete sounds (aswāt muqaṭṭa‘a),’ and that ‘an utterance is not considered language unless it has sound and letters (sawt wa-ḥurūf) through which meaning is recognised.’ It may be clear by now that the expression sawt wa-ḥurūf means rather ‘an acoustic continuum divided into a series of discrete elementary units.’

The two aspects of nuṭq, that is the phonetic-linguistic and the conceptual-logical, seem to have inhered in the original usage of the related terms in the Qur’ān, where God is described as ‘the one who makes everything speak’ (alladhī anṭaqa kulla shay‘in, 41:21), and where speaking is associated with verification, with the ascertainment of reality: ‘All this is as real as your speaking’ (ḥaqqun mithla mā annakum tanṭiqūn).

14. See below p. 258.
15. This ‘duality of patterning’ is Martinet’s double articulation. See ‘Zweifache Gliederung’, C. Lehmann, Phonetik und Phonologie (Erfurt: Universität Erfurt, 2007), 2.6. More on this topic in my Conclusion below, p. 249.
18. 51:23, transl. Abdul Haleem; Yusuf Ali elaborates, ‘this is the very Truth, as much as the fact that ye can speak intelligently to each other.’
and ‘Our Book speaks (kitābuna yanṭiqu) against you with truth.’¹⁹ But the most famous of the occurrences of this root in the Qur’ān is the mention of the manṭiq al-tayr (27:16), the language of the birds,²⁰ which Solomon is said to have learnt by God’s favour. It is from this passage that ‘Aṭṭār took the name of his famous poem, often called in English the Conference of the Birds. The language of the birds became a Sufi image for the understanding of the cosmic language, both by ‘hearing’ and ‘reading’ the signs of nature, granted to the prophets and saints,²¹ and it was perpetuated as a prerogative of magicians and sages in folk Arabic literature. We had encountered Solomon previously²² as related in rabbinical literature to the origin of acrostics. Indeed, in the figure of this prophet-king there is much to consider him a representative par excellence, or even the patron of the science of letters as the knowledge of the elements of the universe, whence his epithet, Magister omnium physicorum.²³ The Qur’ânic depiction which makes of him, literally, a manṭiqī sage, that is, a knower of language in its various ‘logic’ aspects, is an echo of the verse of the Wisdom of Solomon where he speaks of having been taught ‘the structure of the world and the activity of the letter-elements’ (σύστασιν κόσμου καὶ ἐνέργειαν στοιχείων, 7:17). Further comment on this and on the related significance to Solomon’s architectural work will be left for a later chapter.

Starting Point and Influences

It would be left to esoteric philosophers and to mystical authors to penetrate the structure of that mythical bird language, and to elaborate and draw upon the symbolism of the alphabet and the letters in particular. As tends to be the case with the applied ‘subtle’ sciences, the ‘initiatic arts’ often bundled under the labels of ‘the occult’ or ‘esoterica’, the applications of ‘ilm al-hurūf, the ‘science of the letters’, always

²². See above p. 115.
attracted most of the public attention, and have equally continued to attract most scholarly studies, prompting facile, and sometimes outright dismissive reductions of their nature to ‘divinatory practices’, to ‘magic’ or ‘pseudo-sciences’. The picture is clearer, however, and more relevant to the Islamic worldview, when it is understood that ‘occult beliefs and practices are inextricably embedded in philosophical, scientific, and religious discourses,’ and when the science of letters is thus understood as one of the natural developments of the language cosmogony mentioned above, and its applications revealed as instrumental in relation to the doctrine. The occult sciences, in spite of their proneness to degeneration into superstition, are ‘repositories of cosmological principles’, and the symbolism of the letters is one of these which finds macrocosmic and microcosmic applications through different disciplines. This is why the science of the letter-numbers can be called ‘the place and language that are common to metaphysics, cosmogony, and cosmology, as well as to the initiatory path.’

As is the case with Greek alphanumeric cosmology, the elaborations on the Arabic letter-numbers, be they scientific, theological or magical, are based on the perceived intrinsic nature of the letters themselves and on the nature and structure of the alphabet which comprises them (and which they constitute). The point of departure of ‘ilm al-ḥurūf is that the letters themselves are bearers of a knowledge that is revealed to men through the messengers and prophets.

As with the Greek letters, we may try to glean some initial knowledge about the letters from those scholars who study language, namely the grammarians. It turns out, however, that there is no reliable Arabic grammatical literature prior to the Qur’anic revelation, and the greatest authority for the earliest and most authoritative grammarians, in their struggle to preserve the perceived purity of Old Arabic (al-lugha al-ʿarabiyya al-qadīma al-jayyida), was that of the Bedouin speech and poetry. More crucially, the description of the alphabet as we know it dates to the times of al-Khalil ibn

Aḥmad al-Farāhīdī (often called simply ‘al-Khalīl’, 718–786), considered the first Arabic lexicographer, and his disciple Sībawayh (c. 760–796), author of the first extant Arabic grammar. This means that the earliest codification of the basic letter correspondences, from a grammatical point of view, cannot really be separated from the influence of Islamic revelation. As a matter of fact, it was not only the Bedouins’ Arabic which would be considered the highest standard on language questions, but more specifically the Hijazi dialect of Quraysh, because it was in that particular form of Arabic that the Prophet Muḥammad had received the revelations.

There has been a long scholarly debate over Greek and Syriac influences on the development of Arabic grammar, and quite specifically over the extent of the influence of the *Techne* of Dionysius Thrax on some of the features of Arabic grammar. While there seem to be some unsolvable issues, it appears clear now that the Greek influence would have been mediated by Syriac authors, not only grammarians but also philosophers, to whom would have befallen the major task of adapting the grammar and the logical structures of a Indo-European language to those of a Semitic one; the detailed study of this process of adaptation is in its early stages and exceeds the boundaries of this research. What I intend to do in the following pages is to trace the development of Islamic letter cosmology by examining selected passages taken from a wide range of sources, but there are at least two main points which should be retained about the origin of Arabic grammar:

- grammatical reflection developed ‘at the same time (eighth century), in the same place (Mesopotamia), in three different languages (Syriac, Arabic, and Hebrew).’

- grammar developed as an ancillary discipline in relation to Qur’ānic sciences, not unlike the other grammatical traditions developed in the wake of a scriptural corpus.

**The Arabic Alphabet Order**

The Arabic alphabet as we know it today (*alif, bā’, tā’, thā’*...), and as used in practically every dictionary, follows a shape-oriented sequence introduced during the 1st century

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AH. 34 It is called ḥurūf al-hijā’ or ḥurūf al-tahjī, ‘the letters of spelling’, 35 and it is formed by 28 or 29 consonants and semi-consonants.

Another curious and very common designation for the alphabet is ḥurūf al-mu’jam, which means literally ‘letters of confusion’, from a triliteral root ‘j-m’ 36 which parallels closely, from the Arab point of view, the meaning of Greek βάρβαρος as ‘non-Greek-speaking’, foreigner. ‘Alā ḥurūf al-mu’jam meant simply ‘in alphabetical order’, but Arab lexicographers were at pains over the centuries to explain the expression, 37 and two distinct traits of the alphabet can be retained from their attempts: 1) that there was some perceived foreignness to the alphabet, and 2) that the letters, when unconnected and not forming words, were conspicuously meaningless, as foreign bodies. The word ‘uṣma, from the same root ‘j-m, refers to the diacritic dots which distinguish, for example, between ص and ض, a distinction compared to the irruption of light at dawn. The elaborations of the grammarians and lexicographers on the different qualities of the letters, their degrees, their nature and properties, including their astronomical associations and their correspondences with the four elements and the elementary qualities, are clear reminders of this same mixture of grammar and cosmology found in the corpus of Greek grammarians; a notable example is furnished by the introductory pages of Lisān al-ʿarab, the preeminent dictionary of the language, which starts with a chapter ‘On the Disjointed (muqaṭṭa’a) Letters,’ followed by ‘On the Names, Natures and Properties of Letters.’ 39 The sense of foreignness ascribed to the letters when in isolation also brings to mind the Greek grammarians’ insistence on the fact of the indeclinability of the names of the letters, and on the lack of meaning of the originally Phoenician names of the letters. 40

There was also an original letter sequence inherited, with minor regional variations, from the Phoenician alphabet, a sequence shared with the Aramaic, Hebrew and Greek alphabets, starting alif, bā’, jīm, dāl, and known as abjad, hurūf al-abjadiyya (‘letters of the abjad’), or even personified as ‘Abū Jād’. 41 In fact, and strictly speaking, abjad means

35. Cf. Lisān 4627c s.v. h-j-a: al-hijā’ taqṭīʿ al-lafẓah bi-ḥurūfihā, ‘al-hijā’ is the cutting of a word in its letters.’
36. Mu’jam is a maṣdar mīmī of ‘ajama, that is, a ‘mīm infinitive’ used customarily as a kind of aorist, i.e. to express action abstracted from duration.
40. See above, p. 36.
'the first of the words in which are grouped the letters of the Arabic alphabet.'\textsuperscript{42} The abjad is customarily grouped in eight subsets of letters for ease of memorisation, and like its Semitic relatives it lends itself from early times to the representation of numeric values,\textsuperscript{43} to the point that abjad will often simply mean 'the letters in their numeric values.' The eight mnemonic sets of this arrangement, namely, abjad, hawwaz, ḥuṭaya, kalamun, saʿfas, qarashat, thakhadha, ḍaẓagha,\textsuperscript{44} or more often only the first six—thus corresponding to the twenty-two letters of Hebrew—are traditionally matched to the Kings of Madyan (the biblical Midian), 'whose names were laid upon the number of letters of the Arabic writing,' or to some devils, or to 'sons of Persia',\textsuperscript{45} who invaded the Hijaz like the rays of the sun.\textsuperscript{46}

The Arabic Letters as Numerals

The evidence for the earliest uses of the Arabic letters as numbers is currently under scholarly scrutiny, with conclusive evidence found only for as late as the tenth century, but it is generally accepted that, as in the case of Hebrew and Syriac, the influence of the Greek alphanumeric system was decisive,\textsuperscript{47} and it is known from alchemical literature, as I shall explain below, that some form of alphanumeric notation was already in use from at least as early as the eighth century.

The abjad sequence serves as the practical basis of Arabic isopsephy, ḥisāb al-abjadiyya or ḥisāb al-jummal, 'the reckoning of the total',\textsuperscript{48} which, depending on the authors and the periods, has been more or less identified to related forms of onomatopomancy like jafr (sometimes jafr jāmiʿ, often simply identified to 'ilm al-ḥurūf),\textsuperscript{49} simiyā' (letter magic), zāʿiraja (art of the diviner’s board or geomantic

\textsuperscript{42} Manjīd, 1.
\textsuperscript{43} Cf. Chrisomalis, Numerical Notation, 134ff.
\textsuperscript{44} The vocalisation can vary. The 'Western' variant of this arrangement, where five letters occupy different positions, is laid out clearly in C. Bonmariage and S. Moureau, Le Cercle des lettres de l'alphabet (Dā'irat al-aḥruf al-abjadiyya) (Leiden: Brill, 2016), 11.
\textsuperscript{45} Muḥammad ibn Yaʿqūb al-Fīrūzābādī, al-Qāmūs al-muḥīṭ (Beirut: Mu’assasa al-risāla, 1998), 266.
\textsuperscript{46} Tāj, 7.401a.
\textsuperscript{47} See J. Thomann, 'The Two Arabic Abjad Numeral Systems: Scientific Innovation and Archaic Tradition,' pre-publication:7–10. I am very grateful to Johannes Thomann for kindly sharing this still unpublished article.
\textsuperscript{48} Although jummal has been also thought to be a foreign term, see Ibn Manẓūr, Lisān al-ʿarab, 11.128a, Lane, s.v. j-m-l, and especially Thomann, 'The Two Arabic Abjad Numeral Systems,' 5.
\textsuperscript{49} Manjīd, 94b. Confusion and lack of clarity seem to have surrounded for centuries the definition of jafr—cf. M. Ebstein, Mysticism and Philosophy in al-Andalus (Leiden: Brill, 2014), 121; S. Nizamuddin Ahmad calls it 'the science of the symbolism of Arabic letters in their ideophonic, ideographic and arithmological dimensions'; the EI2 article by T. Fahd has valuable references, but for an overall perspective see M. S. Melvin-Koushki, 'The Quest for a Universal Science: The Occult Philosophy of Sāʾin al-Dīn Turka Iṣfahānī (1369–1432) and Intellectual Millenarianism in Early Timurid Iran’ (PhD diss., Yale
compass), and the elusive ḥisāb al-nīm (used to predict winners and losers). In spite of all this alphanumeric flourishing, however, and rather unlike the case with Greek and Hebrew scripts, the arithmetical use of the letters was only conceived as an addition to the writing system which was already functional as a phonographic device.

From a more theoretical point of view, it is interesting to note how the Qur’ān is doctrinally at the foundation of the letter-number concurrence through the divine attributes and actions. Among the famous enumeration of the ninety-nine āsmā Allāh al-ḥusnā, the ‘beautiful names of God,’ we find al-Muḥṣī, the Calculator, He Who Counts, and al-Ḥasīb, the Reckoner, and the roots of these names, ḥ-s-y and ḥ-s-b, appear repeatedly in the Qur’ān describing God’s qualities. In addition to these two usual divine names, some of the divine actions involve other forms of counting and writing. The root for ‘number’, ‘addad, for example, occurs in the interesting combination, wa-ahṣā kullā shay’in addadan, ‘he calculates the number of all things’ (72:28), and in aḥṣāhum wa-‘addahum ‘addan, ‘He has calculated and counted their number exactly’ (19:94). Ḥasaba is more related to the process of thought in general, with its cognates sometimes translated as ratio, measure or reason.

Similarly, some of the divine actions or the Qur’ānic images establish a very direct relation to writing. Because God is said to ‘have prescribed [written] mercy upon Himself’, kataba’alānafsihal-raḥma, some have argued that al-Kātib, the Scribe, or the Writer, can also be considered a divine name. This is repeatedly confirmed by mentions of the Qur’ān itself as a kitāb, and references to books, or writings or records of divine origin are recurrent in the Qur’ān in the form of the following roots:

• raqama— In 83:20, the seventh heaven named ʿIlliyūn is identified with, or said to contain, a kitābun marqūm, a ‘numbered book’, a ‘ruled notebook’, practically a ledger for the deeds of the righteous, with its counterpart in the wretched kitābun marqūm of Sijjīn, the seventh and lowest of earths (83:7). Tarqīm means ‘to add diacritics (taʿjīm) to something written (kitāb) in order to make it clear,’ and a kitāb is marqūm when ‘its

University, 2012), 285.
52. The source is a well-known hadith reported by Abū Hurayra, Sunan Ibn Mājah 3861; Jāmiʿ al-Tirmidhī 3507.
53. Ḥasāh means pebble, thus making with ḥaṣā a perfect analogue to the Latin pair calculus/calculare. From the root ‘-d we obtain also miʿdād, abacus.
55. See Muḥammad ibn Ibrāhīm Ibn al-Wazīr, Īthār al-ḥaqq ‘alā al-khalq, 2 vols (Riyadh: Dār al-ṣumayʿi, 2016), 106–108 for a thorough application of this reasoning and a very extended list of beautiful names.
56. E.g. 2:2, 18:1 and passim.
letters have been made clear by their respective vocalisation signs (‘alâmât al-tanqît’). Not only are the roots of muʿjam and nuqât found in these definitions, but furthermore, raqama is used for sealing and stamping, and raqm means a numeral.\(^{57}\) I hardly need to point out how various aspects of my object of research are found together in this root, to which we shall have occasion to return in later pages.

- **ṣaṭara**—The aspect of a grid-like or ruled pattern occurs also elsewhere with the root of ṣaṭara: future eschatological events are ‘traced (or outlined) in the Book’ fî al-kitâbin maṣṭûran (17:58), and the Book itself is called maṣṭûr (e.g. 52:2), ‘drawn in rows’, like rows of trees,\(^{58}\) or simply ‘ruled’, like lined paper. One of the most quoted oaths in the Qur’ân is ‘by the pen and what they delineate (yaṣṭûrûn)’; the most common explanation to this is that the angels—who incidentally are said to stand in rows (ṣaffât, 37:1)—do their writing in lines (ṣaff).\(^{59}\)

- **madda**—The image of the ink, which I have mentioned above, turns out to be especially interesting due to an ulterior semantic development. In the Qur’ân, the root of madda tends to denote the extension, a spatial or temporal prolongation, as of the earth spread out (13:3, 84:3), or of the life span (19:75), or the ink (midâd), with the basic idea of continuity, as if pulling from a string, and also, in some contexts quite inextricably, with the sense of providing help and assistance. We have in this metaphor a complement to the idea of discrete quantity represented by the numerical terms above. In fact, if we unfold the image of the ink, we can see how both aspects of number coalesce in it—as in the Nicomachean distinction between *multitudo* and *magnitudo*, discrete and continuous quantity—when the divine writer determines the unlimited extension of the ink with the shapes of the letters (ḥurûf), and he does this by creating edges (ḥiraf).\(^{60}\) In view of this, it is quite remarkable how in later philosophical developments, although both Hebrew and Arabic made use of adapted forms of the Greek ἕλη (Lat. *materia*) to name the formless substratum of the world,\(^{61}\) both languages also produced native terms which acted mostly as synonyms of the former, namely Heb. *homar*, ‘mud, clay’, and the one that brought us here, Ar. *mâdda*, explained by lexicographers as a ‘continuous increase’ (ziyâda muttaṣîla).

Later exegesis would explain how the words of God, being continuous with him (muttaṣîla bihi), ‘assist him in the manner of ink’ (yumiddhu) in his overflowing abundance.\(^{62}\) This makes it easy to see how the divine words, perhaps specifically in

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\(^{58}\) *ibid.*, 2007a.

\(^{59}\) Cf. above, Chapter 1, p. 40.

\(^{60}\) Both *ḥurûf* and *ḥiraf* are plurals of the same singular, *ḥarf*.

\(^{61}\) *hayule* and *hayūlā*.

their written manifestation, came to be considered as a sort of prime matter (al-mādda al-ūlā).⁶³

• ratila— Finally, an echo of the same discrete deployment of the divine word mentioned above is found in the terms related to ratila, ‘to be regular and well-ordered’, ‘like healthy teeth’, and which occur solely when speaking of the delivery of the revealed verses. In 25:32, where the subject of the verb is God (rattalnāhu tartīlan), ‘We gave it to you in gradual revelation’, with the meaning of a distinct delivery (bayyīnan), of a ‘harmony and arrangement in proper disposition’ (ittiṣāq wa-intiẓām alā istiqāma).⁶⁴ In 73:4, man is ordered to recite in the same clear and ordered way: rattilīl-qur’āna tartīlan, ‘recite the Qur’an rhythmically and spelling it out distinctly’⁶⁵ or even, simply, ‘with tartīl’, which is the name of the art of Qur’ānic recitation.

I shall have more to say about some of the above aspects when studying later developments in Islamic thought, but for the time being it is sufficiently clear that the Qur’an already contains a rich kernel of alphanumeric symbolism. In the following paragraphs I will attempt to trace the unfolding or the branching out of this scriptural kernel into the various manifestations of the science of ‘letters’.

The Development of the Science of Letters

‘Ali: The Common Source

The ‘knowledge of the letters’ (‘ilm al-ḥurūf) started developing in various directions from the time of the Companions of the Prophet, and eventually it branched into at least two lines of study which exhibit various doctrinal refinements and applications. Looking at the Ḥadith literature, it is quite remarkable how the knowledge of the letters seems to have been initially a preserve of the Shī’a traditions.⁶⁶ This means, concretely speaking, that the traditional wellspring of letter speculation is the person of ‘Ali ibn Abī Ṭālib, cousin, son-in-law and one of the scribes of Muhammad, whose supporters (shī‘at ʿAlī, the followers of ʿAlī) accorded him not only the greatest importance as the prolonger of the Prophet’s blood-line (ahl al-bayt, the ‘people of the house’), but

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⁶⁴. Samīn, Ṭumdat al-ḥuffāz, 2.70.
also an exalted spiritual authority of his own. Imām ʿAlī is not only the first khalīfa or successor of the Prophet recognised by the Shīʿa, but he is also one of the four ‘rightly guided caliphs’ recognised by the Sunnite and other smaller Islamic denominations like the Ibadis. He is directly or indirectly one of the major sources, if not the main source of most Shiʿa hadith literature, and he is also a major transmitter of Sunni hadiths,⁶⁷ in many of which his special nature and relation to the Prophet is unquestionably transmitted. A well known tradition from the Prophet states ‘I am the abode of wisdom (or “the city of knowledge”) and ‘Alī is its gate,’ anā dār al-ḥikma wa-ʿAlī bābuḥā.⁶⁸ No other of the companions of the Prophet has any comparable authority straddling—and indeed bridging—the Sunni-Shīʿa division.⁶⁹ It is worth remembering not only that Imām ʿAlī is considered the indisputable source of all initiatic sciences, but also that with the exception of one, all Sufi orders count him as the first link of their lineages immediately after the Prophet.⁷⁰ The figure of Imām ‘Alī thus stands in Islamic history as a unique point of intersection between tashayyuʿ, the adherence to the Shiʿa, tasannun, following the Sunna, and taṣawwuf, the way of Sufism, or Sunni esoterism.

And it is this figure, admittedly a composite of many elements of varying degrees of historicity, that stands at the origin of the sciences of language and the letters. ‘Alī is acknowledged as the first authority of Arabic grammatical tradition,⁷¹ as the one who directly instructed Abū al-Aswad al-Duʿalī (ca. 603–689), who first put grammar in writing (awwalu man waḍaʿa al-naḥw);⁷² and he is also at the origin of Arabic calligraphy in its outward and inner aspects.⁷³ ‘The Messenger of God made ‘Alī learn a thousand letters (alf ḥarf), each one of which opens a thousand more.’⁷⁴

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68. Tirmidhī 4089; variations in al-Ḥākim al-Nishābūrī and Ibn ‘Abd al-Barr.
71. See Al-Nāṣṣir, *Sibawayh the Phonologist,* 5.
72. Al-Duʿalī is credited with the invention of the first Arabic diacritics, but no work by him has been preserved. Thus, although acknowledged as the first grammarian of Arabic, the first grammar we have access to is that of Sibawayh.
Letters in the Ḥadīth Literature

As mentioned earlier, references to alphanumeric symbolism are notably absent from the major Sunni Hadith collections. A detailed search through the Kutub al-sitta, “The Six Books” which form the most accepted canon, with the addition of Musnad Ahmad and other collections like the Riyāḍ al-ṣāliḥīn, have yielded the following results.⁷⁵

• Ḥarf is used in the Sunni Hadith literature mostly in its meaning of ‘reading variation’, one of the seven canonical aḥruf or ‘modes’ of Qur’ānic recitation, and occasionally to refer to any variation as a preference in a way of acting.

• References to the divine Pen, al-qalam, are perhaps the clearest connections to the written word cosmogony. In most cases the Pen is mentioned as recorder of human destiny, in the fatidic expressions ‘the Pen has dried’ (jaffā al-qalam) or ‘the Pen has been lifted’ (rufiʿa al-qalam),⁷⁶ but a clearer cosmogonic occurrence speaks of it as ‘the first created being, to whom God said, “Write!” and so it flowed endlessly with every existant.’⁷⁷ In other wordings, there is the significant difference that what is written by the Pen is not the existence itself, but destiny, al-qadar.⁷⁸ In the same hadith there is question of the ‘mother of the book’ (umm al-kitāb), explained as kitābun katabahu Allāh qabla an yakhluqa al-samawāt, ‘a book (writing) He wrote before creating the heavens.’ In other narrations, umm al-kitāb refers to the Fātiḥa, the first sura of the Qur’ān and main obligatory part of the canonical prayer.

• Most uses of kataba and cognates, aside from kitāb to refer to the Qur’ān, have to do either with predestination, with ritual prescriptions, or with the divine recording of good and bad deeds; indeed, the ‘recording angels’ assigned to every person are called ‘the scribes’, al-kuttāb.⁷⁹ One cosmological example in Ṣaḥīḥ Muslim⁸⁰ shows the direct relation between the doctrine of predestination and the divine reckoning and writing: كتب اللهم قادرات الخلق قبل أن يخلق السماوات والأرض ‘God wrote (kataba) the measures (maqādir, related to qadar, predestination) of created beings before creating the heavens and the earth.’ In one variation of the above referred tradition, when the Pen is created, it is charged with writing specifically the same maqādir, the ‘measures.’⁸¹ This semantic

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⁷⁶. E.g. Sunan Abī Dāwūd 4398.
⁷⁷. Tirmidhī 3637
⁷⁸. Tirmidhī 2308.
⁷⁹. Muwaṭṭa’ Mālik 1822.
⁸⁰. Hadith 6919.
⁸¹. Sunan Abī Dāwūd 4702.
field which combines fate with measuring, and with the notion of power and control intrinsic to this root, is represented by three of the most common divine names, al-Qadīr, al-Qādir, and al-Muqtadir, which express with differing degrees of emphasis the various aspects of determination.⁸² Among the traditional definitions of miqdār is found simply mawt, ‘death’, for ‘when the servant reaches the term, he dies.’⁸³

- **Number and counting**: although the important Qur’ānic image of the ink is far from prominent in the Hadith, we find in Tirmidhī and other collections the following litany, given when the Prophet instructs a woman who was counting the praises ‘with pebbles’.⁸⁴ subḥāna Allāh ‘adada khalqihi [...] subḥāna Allāh midāda kalimātihi ‘Glory to God according to the number of His creation [...] Glory to God according to the extension of His Words’ or ‘according to the ink of His words.’⁸⁵

I have little doubt that more in-depth examination of the Hadith literature would yield more such internal correspondences, which are most often based on the structure of the Arabic language, hence all too easy to be lost in translation, while at the same time inseparable from any traditional Arabic exegesis, even when the correspondences are not brought to light explicitly. What I have tried to show in the previous paragraphs is, primarily, that what underlies the exegetical principle of al-Qur’ān yufassiru baʿduhu baʿdan (different parts of the Qur’ān explain one another), is extensible to the wider corpus of Sunni Islamic traditional sciences, which is based on a strict exegetical hierarchy.⁸⁶ After the Qur’ān, the second source is the Sunnah, the Hadith of the Prophet, which includes the often overlooked commentaries on the Hadith,⁸⁷ and only later the tafsīr literature, which in some cases actually includes commentary on both the Qur’ān and the Hadith.

At the junction between the Sunni and Shi‘i exegetical traditions we find, in addition to ‘Ali, a few other personalities who seem to be of special relevance in the transmission of the esoterism of language: ‘Abd Allāh ibn ‘Abbās, ‘Abd Allāh ibn Mas‘ūd, and most notably, through a direct line from ‘Ali through his son al-Ḥusayn, the towering figure of Ja‘far al-Ṣâdiq (d. 765).⁸⁸ Ja‘far, the sixth Shi‘i Imam, is also, through his mother’s

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⁸². One is reminded of the Greek triple personification of the Fates: Clotho, Lachesis and Atropos—the spinner, the measurer and the decider.
⁸⁴. That is, she was ‘calculating’ her prayers; Abū Dāwūd 1502.
⁸⁵. Tirmidhī 3903, al-Nasā’ī 1360, Muslim 7089.
⁸⁷. ‘These commentaries find in the Hadīth, in addition to direct interpretations of Quranic verses, the very principles of symbolism found in the Quran and applied in later Quranic commentaries,’ ibid., 94. See Abdul Hakim Murad, *Selections from the Fath al-Bārī by Ibn Ḥajr al-ʿAsqalānī* (Bartlow, Cambridge: Muslim Academic Trust, 2000), 1, for a brief introduction to the genre.
lineage, a descendant of the caliph Abū Bakr al-Ṣiddīq, thus uniting, like ʿAlī, the two main lines of Prophetic succession. He is also a prominent link in most Sufi initiatic chains (salāsil), and a source par excellence of Islamic occult sciences. I shall have occasion to mention him again when discussing the origin of Islamic alchemy.

The Two Branches

The two major lines of study of the Islamic ‘science of letters’ refer respectively to ① the symbolism of the alphabet and ② to the symbolism of a subset of fourteen letters known as the muqatṭaʿāt or ‘cut-off’, ‘isolated’ letters, found at the beginning of twenty-nine Qur’ānic suras, alone or in unsemantic combinations of up to five letters. Some suras derive their names from these opening letters, like Qāf (50), or Ṭā Ḥā (20) and Yā Sīn (36) which have even become personal names.

Two complementary Shiʿī hadiths illustrate and sanction these two main branches of letter speculation:

‘God Most High has a choicest part (ṣafwa) in every book, and the choicest part of this book are the letters of the alphabet (ḥurūf al-tahajjī).’

‘God Most High has a secret (sirr) in every book, and his secret in the Qur’ān is in the isolated initial letters of the suras (awā’il al-suwar).’

Leaving aside the possible implications of the distinction between ṣafwa and sirr, which might prove too subtle for this context, we can observe that the first group, the ‘spelling letters’, resembles that comprehensive set of alphanumeric principles called in Greek the twenty-four στοιχεῖα. Because of their inclusiveness—they comprise all letters—and as I had had occasion to mention when speaking of the Gnostic concept of the pleroma, they are primarily cosmological, that is related to the constitution of the universe as it stands—or as it stands in the divine blueprint—, formed by all the elements, and this is why they are related to wisdom, to the comprehension of reality.

On the other hand, the sub-set of fourteen might be compared to one of the alphabetic subsets we had encountered among the Greek grammarians, with the difference that

90. They are also called awā’il and fawāʾīl al-suwar, the ‘first ones’ or ‘the openers’ of the suras. A succinct and well rounded characterisation is found in P. Garrido Clemente, ‘Ibn Masarra a través de las fuentes: obras halladas y escritos desconocidos,’ Estudios Humanísticos. Filología, no. 31 (2009): 95–6.
92. Ibid.
93. See above p, 145.
this time what sets the fourteen letters apart is not a phonetic trait, but an inscrutable divine design. The isolated letters are primarily related to cosmogony, insofar as they are selected instruments used by the demiurgic God, and this explains why they are so important in magic and other related disciplines where their creative energy is brought into play. I will call this type of speculation ‘restricted’ letter cosmology, in contrast to the full-alphabet ‘comprehensive’ type.⁹⁴

In line with the object of this research, I shall refrain from studying in any detail the attributes and powers of particular groups of letters, in order to focus instead on the cosmological meaning of the alphanumeric system as a whole. Nonetheless, I must take note of the following dictionary definition of muqatṭa‘āt, which comes as close as possible to our elemental enquiry:

The elements (muqatṭa‘āt) of something are those modes (ṭarā‘iq) into which it decomposes and from which it is composed, like the elements of an utterance. The elements of poetry and its rhythmic divisions (maqāṭī‘) are those parts (ajzā‘) into which it decomposes and from which it is composed, and which the Arab prosodists call syllables and feet.⁹⁵

This brief passage is remarkable for more than one reason: in the context of this work, the similarity with the definition of στοιχεῖον given by Aristotle is striking enough, but when we realise that the terminology used belongs to prosody and metrics as the most musical aspects of language,⁹⁶ then we cannot but be reminded of Balázs’ theory about the meaning of στοιχεῖα,⁹⁷ and how he relates the term to metrics and prosody. There is also a clear parallel to the Philebus description of how the phonetic continuum was cut asunder by Thoth in order to produce the phonemes.⁹⁸ The word ṭarā‘iq, ‘ways, pathways’, agrees neatly with the etymology proposed by Balázs, whereby στοιχεῖον derives from στείχω, ‘to walk’, as if each of the elements is a pattern, as the tracks left on a path, which is not far at all from the actual way of drawing letters on different

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⁹⁴. I wonder if it might be useful to introduce in this context the rare distinction between ‘ulūm al-ḥarf, the ‘sciences of the letter’, as the more metaphysical and cosmological, in contrast to the well known ‘ilm al-ḥurūf. I am currently tracking the usage of ‘ulūm al-ḥarf, which seems to go back to at least the fourteenth century.
⁹⁷. Above, p. 29.
⁹⁸. See above p. 138.
media, and which brings us close once again to the term paleographers use to describe
the tracing pattern of a letter, the *ductus*, that is, the movement pattern of the writing
instrument. Needless to say, the fact that these elementary letters are related to metrics
and prosody has doctrinal implications regarding the cosmogonic role of poetry and
song. In this regard, it must also be noted that the three *matres lectionis*, the semivowels
*ālif, wāw, yā* (‘glides’, in linguistic terminology) are called in the grammatical tradition
*ḥurūf al-madd*, ‘letters of extension’,⁹⁹ with the same root of *midād*, the ink, and *mādda*,
matter, as explained above. An alternative name is *ḥurūf al-ʿilal*, ‘causal letters’ or
‘letters of affliction’, because as in Greek grammar, words with ‘accidents’ are viewed
as afflicted, ill, in opposition to ‘healthy’ words without accidents.¹⁰⁰

Returning to our two branches, I should mention two other existing classifications
or typologies of the Islamic ‘science of letters’:

1) For Denis Gril¹⁰¹ there is one first aspect he characterizes as ‘cosmological and
Hellenic in origin’, present especially in the Jābirian corpus and in the *Epistles of Ikhwān
al-Ṣafā‘*; and a second aspect ‘metaphysical, spiritual, eschatological, inspired by the
Qurʾān’, and ‘represented by esoteric Shi‘ism and ṭaṣawwuf.’

2) Sara Sviri and Michael Ebstein propose,¹⁰² after a ‘comparative and analytical
study’, two types designated by Greek letters: ‘the most familiar, type α’, is found
in orthodox Islamic literature and in classical Sufi texts, and it reflects a ‘symbolic
and etymological approach to the Arabic alphabet’ and especially to the *fawātiḥ*,¹⁰³
while notably eschewing any conception of letters as building blocks of creation in
cosmogonic and cosmological contexts. The second ‘type β’ reflects an approach which
views language, and in particular letters, as the primordial building blocks of the cosmos.
This type is found in the Shi‘ī-Isma‘ili tradition and in Andalusian letter mysticism, for
example in the writings of Ibn Masarra and Ibn ‘Arabī.

The first typology is more historical, based on demarcation between two distinct
doctrinal traditions: the Greek heritage and the original Islamic material. The second
typology is more idiographic, based on the premise of a distinct duality within the
Islamic tradition between ‘orthodox Sunni and classical Sufi’, and ‘Shi‘ī-Isma‘ili’.

Needless to say, both classifications have their usefulness, and this is not the place to
examine their aptitude in any detail. In any case, I shall not be making use of either of

⁹⁹. See *EALL*, 2.308–10. *Al-madd iṭāla al-ṣawt*, ‘al-madd is an prolongation of the utterance.’ The many
symbolic associations of the Arabic *matres lectionis* are explored in J. Canteins, *Phonèmes et archétypes:

¹⁰⁰. See *EALL*, 2.309.


¹⁰³. The ‘openers of the suras’; see above ⁹⁰.
them, and I trust that the reader will have noted why I remain rather unconvinced on both accounts. The intricacy of the exchanges between the Greek heritage and simultaneous and subsequent traditions is simply too bewildering and opaque to allow for clear categorisations; and similarly, deciding to what extent we can consider the Islamic tradition a continuum or a clear-cut mosaic, and deciding where to set the boundaries between the different strands of Islamic esoterism is without doubt an uncertain task. Naturally, I remain perhaps just as unconvinced by the classification in ‘two branches’ posited above, since a clear demarcation between the two types of letter speculation I mentioned is not only elusive but it may prove eventually cumbersome. Hence I shall try to continue presenting the relevant evidence in forensic fashion, and only occasionally sum up the findings rather than trying to draw too many conclusions.

Some Key Texts

Adding to the verses and other passages cited above, and to give a more rounded perspective of the sources of Islamic alphanumeric esoterism before moving on to other sources not directly religious, I shall present in the following paragraphs a few key passages taken from hadith and tafsīr literature. As in previous chapters, I will add my own commentaries to bring out the relevance of the citations to the present enquiry.

Jawâmî ‘al-kalim • There are a number of hadiths in which there is mention of the jawâmî ‘al-kalim, the ‘comprehensive plenitude of expressions’, as one of the Prophetic gifts. An oft-cited commentary introduces a reference to the nature of the letters,

In the hadith ‘I was given the comprehensive plenitude of expressions (jawâmî ‘al-kalim),’ is meant the Noble Qur’ân, because God has comprehended in a small number of His words (alfâz) a multitude of meanings, so much so that it has been narrated: ‘there is no letter of the Qur’ân which does not contain seventy-thousand meanings.’

In relation to this inexhaustibility of each particular element, and while commenting on the ‘verses of the ink’ (Q. 18:111 and 31:28) much later in Islamic history, Mulla Ṣadrâ Shirāzī would add the following: ‘And as His existential script (kitâbu takwîni) is endless, so His recorded script (kitâbu tadwînî), I mean the Noble Qur’ân, is also endless, because it is fashioned after its emitter (qâ’iluhu).’

104. E.g. Bukhârî 7099; Muslim 1195; Tîrmidhî 1640.
105. Fâhkhr al-Dîn al-’Tûrâyhi, Majma’ al-bahrayn, 3 vols (Qum: Mu’assasa al-Bî’thah, 1415 AH), 312, s.v. j-m-ʿ.
is speaking of the ‘two Qur’āns’ or the ‘two books’, the kitāb takwīnī or cosmic book and the kitāb tadwīnī or ‘records’ book, exactly along the lines of the ‘two books’ or the duplex liber, the liber mundi or liber creaturarum and the liber sacrae doctrinae of the European middle ages.¹⁰⁷ In the thirteenth century, ʿAzīz al-Dīn al-Nasafī had also spoken of the Qurʾān-i tadwīnī and Qurʾān-i takwīnī,¹⁰⁸ but what is most important from our point of view is the ‘endlessness’ of the book. It is not based on the idea of incalculability, as if there were too many letters to be counted, but rather on the idea that every letter opens onto an innumerable quantity, hence constituting what has been called an ‘intensive magnitude’,¹⁰⁹ analogue to the ‘density’ of the real numbers, and most importantly, since we are looking into the physical/cosmological correspondences, clearly distinct from an atomistic understanding of matter.¹¹⁰ This is a topic I shall have occasion to return to in later pages.

A limit and a summit • The following tradition, found in slightly different forms in various sources,¹¹¹ is important as a source for the traditional multi-layered exegesis of the Qurʾān. I quote here the section, with minor comment, where it is shown how the multiple meanings depend partly on the nature of the letters.¹¹²

في ذكر القرآن لكل حرف منه حد و لكل حد مطلع قبلي معناه لكل حد مصدر يصعد
إليه يعني في معرفة علمه

‘About the recitation (dhikr) of the Qurʾān: every one of its letters has a limit/terminus (ḥadd), and every limit has its place of ascent/departure point (muṭṭala’).’ The meaning of ‘every limit’ is a summit towards which one ascends, that is, in the experiential comprehension of its knowledge (fi maʿrifat ‘ilmihī).¹¹³

¹¹⁰. This is the ‘synechist’ position; see J. L. Bell, The Continuous and the Infinitesimal in Mathematics and Philosophy (Monza: Polimetrika, 2005), 57–9.
¹¹². See ibid. for a comparison with the rabbinic pardes acrostic and the scholastic hermeneutical quadriga.
The image of the ‘mountain summit of a letter’ is a striking one to convey the depth, in this case height (Lat. altitudo), of every element of the sacred text. It is easy to imagine the readers, when having access to the real knowledge (maʿrifat ʿilmihi) of the letters, as mountaineers walking along the summits of a vast range. This image of immensity expresses in a more graphic way the same ‘endless’ nature of each letter that we found in the previous passage.

**Beyond utterance** • In *Al-Kāfī, ‘the Shiʿī Bukhārī’,* that is, the most authoritative of the Shiʿi hadith collections, is found the following,

خلق اسماء بالحرف غير متصوّت وباللفظ غير منطق وبالشخص غير مجسّد، والتشبه غير موصوف، وباللون غير مصبوب...

He created names with letters without uttering a sound (mutaṣawwit), and with a word without speaking (munṭiq).¹¹⁴ with individuality without embodying (mujassid), with a similarity beyond qualities, with colour without hue... ¹¹⁵

There is a rich textual tradition on the different kinds of divine names, at times strikingly similar to some passages of the Jewish *hekhalot* literature, with names of different lengths, cosmic attributes and functions. Some Muslim communities, small in numbers but large in doctrinal influence, like the Ismāʿīlīs and the Ghulat movements,¹¹⁶ developed complex cosmological schemes based on these names in combination with Qurʾānic material, like the speculations based on the ‘myth of Kūnī-Qadar’. This is based on the Qurʾānic cosmogonic imperative *kun* (‘Be!’) and the doctrine of *qadar* or predetermination, for ‘God brought all things into existence by means of kūnī, and predetermined them by means of qadar’ (*qa-bi-kūnī kawwana Allāh jamīʿ al-ashyā’ wa-bi-qadar qadarahā Allāh*).¹¹⁷ In general, this and similar theories belong under the restricted letter speculation, and as such, in spite of their interest, I shall only be referring to them when they shed light on the comprehensive letter speculation.

What is to be noticed particularly in this hadith is the mention of an ‘un-linguistic language’ in *divinis*, with letters beyond utterance and with a word beyond language, in short, an intermediary realm (*ʿālam mutawassit*), a *barzakh* where opposites are not

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115. Hadith 305, ch. 15.1.


necessarily dissociated. In the ‘world’ of the *barzakh*, forms are described as ‘measures devoid of matter’ (*maqādīr mujarrad ‘an al-mādda*),¹¹⁸ unlike the forms of this material world and also unlike the forms of the spiritual world.¹¹⁹ Another passage in the same commentary mentions ‘the mimetic and intermediary shapes or bodies’, *al-ashbāḥ ayy al-ajsām al-mithāliyya wa-al-barzakhiyya*, thus making clear that these intermediary forms are conceived as metaphysical models or patterns.¹²⁰

**Back to Basics: Philosophy & Physics**

Before moving forward in history, and taking advantage of the mention of the metaphysical dimension of the letters, we need to complete the Arabic picture of the semantic field we are studying. Following what we did in the initial pages of this enquiry, where I introduced the Greek concept of element citing Aristotle, it is now time to see what the Arabic scholars made of the polysemy of στοιχεῖον.

**The Metaphysics**

With the passing of time, the study we now know as ‘metaphysics’ came to be known in Arabic under two different names: one very literal from the Greek, *mā baʿd al-ṭabīʿa*, ‘what is beyond nature,’ and one more theological, *al-ilāhiyyāt*, ‘divine matters.’ As expected, Aristotle’s book has been known under these two names through history. This makes it more remarkable that the earliest name for the *Metaphysics* was *Kitāb al-Ḥurūf*, ‘The Book of Letters.’¹²¹ The name was due, it was explained, to the fact that the chapters were named sequentially after the Greek letters, starting with *Metaphysics Alpha*, and so on. This was of course the usual Greek practice to enumerate sections of a literary work. The prime example is the Homeric epics, but in philosophy it is noticeably the case of the books of Plato’s *Republic*, and of Aristotle’s *Physics*. Why would these others not be called also *Kitāb al-Ḥurūf*? It is certainly not my intention to start speculating, but in the context of the present work, after we have seen how the order and other features of the Greek alphanumeric series made of it a model for any system of principles, it would be hard to miss the possible implications of the title.¹²²

In fact, it has been noted that another famous *Kitāb al-Ḥurūf*, by al-Fārābī, owes its

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¹¹⁸. Note that *maqādīr* is also a technical term in prosody, meaning ‘metres’.
¹²⁰. *ibid.*, 3.52.
¹²¹. Ibn Nadīm (tenth century) gives it as the title, with *al-ilāhiyyāt* as an alternative; see A. Bertolacci, ‘On the Arabic Translations of Aristotle’s *Metaphysics*,’ *Arabic Sciences and Philosophy* 15, no. 2 (2005): 244ff.
title not only to Aristotle’s work, but also to the understanding that Greek ‘particles’ ('particle' is one of the important grammatical meanings of ḥarf) are ‘comparable to the logical constants of an ideal language’ and ‘demarcate the domain of metaphysics.’¹²³ It is worth noting that al-Fārābī himself refers to Aristotle’s work as ‘al-kitāb al-mawsūm bi-al-ḥurūf’, ‘the book known by letters,’ i.e. the book known by the letter-names of its chapters.

Let us now turn our attention to the ‘Glossary’ in book Δ, where this thesis started. I follow the text as found in Averroes’ Tafsīr,¹²⁴ ‘a fundamental witness to the different versions of the Arabic Metaphysics,’¹²⁵ and I shall bring in for comparison the Hebrew version.¹²⁶

The Arabic word used in Tafsīr Δ3, and in general most frequently to translate στοιχεῖον, is a calque from the Greek, ṭustuqus أسطقس (pl. ṭustuqusāt), found with numerous alternate spellings and vocalisations¹²⁷ which are testimony to the instability of the foreign word. Other indigenous Arabic terms are occasionally used, like ‘unsur (pl. ‘anāṣir), a ‘race, lineage’, i.e. conveying the meaning of origin, or rukn (pl. arkān), a ‘pillar, cornerstone’, i.e. a structural support, but in metaphysical terminology, ustuquss tends to be prevalent. Whereas Arabic translators decided to use this calque, which would be fleshed out with meaning through the centuries of literature, it is notable that Hebrew translators decided to use native words like yesod, ‘fundament’, ‘etsem, ‘bone, gist’, shōresh, ‘root’, and even em, ‘mother’, or av, ‘father’,¹²⁸ thus displaying in the different contexts the many aspects of the concept. It is as if the Arabic authors, recognising the untranslatable semantic complexity—precisely what we have been 123. S. Menn, ‘Al-Fārābī’s Kitāb al-Ḥurūf and his Analysis of the Senses of Being,’ Arabic Sciences and Philosophy 18, no. 1 (March 2008): 59; this article gives a fine treatment of al-Fārābī’s scope and intention. Cf. above, p. 86, my reference to ‘prepositional cosmology,’ especially to Dörrie, ‘Präpositionen und Metaphysik.’


126. While the concept relevant to this research does not presently warrant a wider survey, I would like to draw attention to the valuable philosophical glossaries in the Arabic tradition which, though varying in scope and extension, could be considered successors of Metaphysics Δ. K. Kennedy-Day, Books of Definition in Islamic Philosophy: The Limits of Words (London & New York: RoutledgeCurzon, 2003) gives a good introduction. Al-Kindi, Ibn Sinā and Isaac Israeli authored each a Kitāb al-ḥudūd, Book of Definitions; al-Fārābī wrote his Alfāz al-musta’malā fi al-maṭanīq, Terms Used in Logic, similar to al-Ghazālī’s glossary in his logic treatise Mi’yār al-ʿilm; Jurjānī (d. 1078 AD) wrote a Compendium of Definitions, Mu’jam al-ta’rifāt.

127. Including istaqis, astaqis and others, see Munjid, 11.

128. Thesaurus philosophicus linguae hebraicae (Otsar ha-munahim ha-filosofiyim) (Berlin: Eshkol, 1928) (hereafter cited as Klatzkin), ss.vv.
studying—realised that they had no equivalent that could do justice to the original and decided to use the Greek word which acted as an empty semantic container.¹²⁹

On some occasions, when the grammatical meaning is clear, the Arabic translators have also used harf, and the Hebrew ot.¹³⁰ There is not much of immediate interest for us in the detailed comparison between the texts of the Metaphysics, since the translators have used different words when necessary, bringing out the aspects of the concept according to the context. Other major works of philosophy, like Ibn Sīnā’s section on metaphysics in his Shīfā‘ follow the same flexible usage, and I shall cite some of them in the coming pages, but only specially relevant passages.¹³¹

In the wider philosophical and scientific literature, a recurrent device which highlights the difficulty of the translation is the use of a hendiadys (two joint nouns expressing the one source term) to translate usṭuquss. In Aristotle’s Rhetoric (II, 26, 1403a18 and elsewhere), the combination ḥurūf wa-uṣūl, ‘letters and principles’ is used to translate στοιχεῖα; alternative combinations include ḥurūf ayy usṭuqussāt, ‘letters, i.e. “elements”’, or also ‘anāṣir wa-uṣūl, ‘elements and principles.’¹³²

It is also worth noting, and again an indicator of the early semantic instability of usṭuquss, how the original Greek expression τὰ καλούμενα στοιχεῖα, ‘the so-called elements,’¹³³ was occasionally translated literally in Arabic in spite of losing its meaning in a new language: allatī tusammā usṭuqussāt, ‘the ones called “elements”’,¹³⁴ does no longer convey the implicit lexical objection read by most interpreters of the Greek text, because usṭuquss is already a foreign term and an empty vessel in Arabic, with no previous meaning to play upon. In contrast to this, we find also the variant allatī tusammā al-uṣūl, ‘the ones called principles,’ which makes better sense in translation.¹³⁵

Galen, notably, wrote a treatise entitled Περὶ τῶν καθ Ἱπποκράτην στοιχείων, On the

¹²⁹ The ending in sin of usṭuquss has been considered evidence that the word comes from στοῖχος, ‘row’ instead of στοιχεῖον. Even though this sounds plausible and might give rise to interesting morphological precisions, I doubt that it would have much impact on the semantics of the term.


¹³¹ For a number of examples, see G. Endress and D. Gutas, A Greek and Arabic lexicon: Materials for a Dictionary of the Mediaeval Translations from Greek into Arabic, Handbuch der Orientalistik. Erste Abteilung, der Nahe und Mittlere Osten (Leiden: Brill, 2013) (hereafter cited as GALex), s.v. usṭuquss, and see in particular the still unpublished filecards made available online at Glossarium Graeco-Arabicum (http://telota.bbaw.de/glossga/).

¹³² Cf. above, p. 100, my reference to the use of ‘unṣur in Nicomachus De Arith., 2, 1. Kraus’ assertion that usṭuquss was never used in the sense of ‘letter’ could only be true of a restricted alchemical corpus; see P. Kraus, Jābir ibn Ḥayyān. Contribution à l’histoire des idées scientifiques dans l’Islam II: Jābir et la science grecque, Mémoires de l’Institut d’Egypte 45 (Cairo: Institut français d’archéologie orientale, 1943), 237.

¹³³ See above p. 14; Diels, Elementum, 25.

¹³⁴ Arist. Gener. anim. I, 1, 715a11; see GALex, 218.

¹³⁵ Artem. Oniocr. 5.21.
Elements according to Hippocrates, in which he compares ἀρχαί to στοιχεῖα, discussing the meanings of these terms according to several schools. It was partially translated into Arabic and commented by Ḥunayn ibn Ishāq (Kitāb Ḥalīnūs fī al-usṭuqussāt alā raʾy Abuqrāt), who tries to shed some light on the confusion regarding the different translations of usṭuquss.\(^{136}\) This ‘element’ ‘differs from ‘unṣur in that, unlike the latter, it possesses qualities,’ and from ibtidā’ because the usṭuqussāt ‘are “parts of the generated thing, existing in potentia”’\(^{137}\) I shall not enter into the discussion, but only point out that the fact that usṭuqussāt was the term used for the title would seem to agree with the undecided status of the elements in this treatise, halfway between material reflection of the elemental qualities and corporeal minima, or sometimes considered minimal in respect of size, and others as minimal in respect of quality.\(^{138}\)

A valuable contrast is here furnished by the translation of the most famous of the related titles, namely Euclid’s Στοιχεῖα, which became in Arabic the unequivocal Uṣūl or Uṣūl al-handasah, Principles of Geometrical Construction\(^{139}\) (and in Hebrew Ha-Yesodot, The Foundations). Whereas the meaning of στοιχεῖα in a medical or chemical context was elusive and hard to define, it seems to have been clear in the logical, mathematical sense. On a similar note, Euclid is known to have also written, following Pythagorean teachings, a treatise on the elements of music, and it is reported that Proclus, together with his disciple Marinus, pointed to a rapprochement between Euclid’s Elements and the elements of alchemy. Though sadly not extant, the musical treatise was related to an anonymous text dealing with the στοιχεῖα of music and alchemy, and attributed to an unidentified Zosimus.\(^{140}\)

The underlying common ground here is the study of harmonics, the theoretical arithmetic basis for the tuning of musical instruments, through which mathematical proportions are in a way transmuted and made tangible in sound.\(^{141}\)

All these chemical, medicinal, musical and alchemical tangents of the science of the elements set the scene for an important landmark in the development of our concept in Arabic tradition, the works of Jābir ibn Ḥayyān, with which we shall bring this chapter to an end.

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\(^{137}\) Ibid., 36–7.


\(^{139}\) Also, rarely, al-Uṣṭuqussāt; see W. Fischer and H. Gärtje, *Grundriss der arabischen Philologie*, 3 vols (Reichert Verlag, 1987). III.62.

\(^{140}\) See A. Barbera, *The Euclidean Division of the Canon: Greek and Latin Sources*, vol. 8 (Lincoln and London: University of Nebraska Press, 1991), 11, for a thorough study of the Κατατομὴ κανόνος.

\(^{141}\) See Shiloah, *The Origin of Language*, 154, for the corresponding phonetic-alchemical correspondence.
Jābir and ‘The Element’

Alchemical works began to enter Islamic lands from Alexandria as early as the seventh century, even before the time of Jābir ibn Hayyan, a legendary figure of the eighth and early ninth centuries—a disciple of Ja’far al-Ṣādiq—who is often viewed as the founder of Arabic alchemy, and whose image would be enormously influential in later European alchemical literature under the name of Geber. The authorship and Arabic provenance of the Latin writings ascribed to him have been the object of the ‘Geber problem’,¹⁴² but I shall not be dealing with these works, as there is an earlier and large Arabic corpus of works in which the different terms used to translate στοιχεῖον coexist in remarkable ways.

It is generally agreed that the name ‘Jābir’ stands more Homerico for a collective rather than a single author, and it is established that the chronology of ‘his’ life does not quite agree with the possible dates of large part of his works. I shall be referring to the person and the received chronology¹⁴³ with the understanding that they may still correspond to a significant part of a historical Jābir, and that in any case they correspond to a part of the conceptual story I am narrating here.

Just as in Jābir’s works are blended the Greek philosophical influence that came from Harrān, and the Shi‘ī heritage in doctrines of Ismaili and Qarmatian character, we find within the corpus a remarkable doctrine of the usṭuquss and also a very developed isopsephic technique under the name of the ‘balance of the letters’ (mīzān al-ḥurūf).¹⁴⁴

The ‘Element’ of the Foundation

Kitāb al-usṭuquss al-uss is the title of the exposition presented in the first four treatises of the 112 Books, the first of the four groups of writings in the Jābirian corpus.¹⁴⁵ It consists of three numbered treatises and a fourth one which acts as a tafsīr of the previous three. The title, The Element of the Foundation, has a remarkable Milesian ring to it,¹⁴⁶ echoing early ‘one element’ cosmologies, like ‘All is water’ and ‘All is fire’, as

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¹⁴⁵. The four groups are: The 112 (sc. treatises), The 70, the Books of the Balances (Kutub al-mawāzīn), and The 500; see P. Zirnis, ‘The Kitab Ustuqus al-Uss of Jabir ibn Hayyan’ (PhD diss., New York University, 1979), 22.

they were characterised by Aristotle. *Al-uss* (pl. *asās*) has strong building connotations in an architectural sense,¹⁴⁷ and it is often used to translate Gr. θεμέλια, foundation stones. In combination with *ustuquς*, the reference is clearly to ‘foundation’ in a sense close to matter, and in any case not of the more abstract metaphysical level, and this agrees with the alchemical context, with the liminal science and art of transmutation.

Due to the alchemical practice of ‘scattering of knowledge’ (*tablīd al-ʿilm*), whereby no topic is treated in linear form, but rather as if in a mosaic, with strands of a single discourse occurring and recurring in seemingly haphazard fashion, it takes some pages for Jābir to begin to explain what is meant by the title of the book, then it takes longer to develop the explanation, and the definitions pile up as so many facets of the concept: the first definition of ‘element’ follows Aristotle, ‘something into which all things dissolve and of which they are composed,’ but shortly after there is a sharp turn into the alchemical proper, ‘the philosophers’ stone of virtuous colour... this is the “element” of this Art.’¹⁴⁸ Further down the text, the ‘four pillars’ (*arkān*), referring to the four elemental bodies, are said to be, each one, an *ustuquς* too, and thereafter the title of the treatise is made clear: it is called ‘*The Element of the Foundation*, because it sums up the dissolution and composition of the parts of the elixir,’ while *al-uss* indicates the fundamental role of this particular treatise within the *112 Books*.¹⁴⁹

Later in the book, in the second part, a direct reference is made to the Galenic discussion mentioned above, where ‘ʿunṣur is given as a synonym of element.¹⁵⁰ The discussion goes along the lines of philosophical discourse and several opinions are given from different sources: the ‘Element’ is identified successively with the ‘receptive matter’ (*mādda al-mawḍūʿa*), with a ‘religious idea’ (*maʿnā diyānī*), and with ‘guidance itself’, and ‘the art and the practice’ (*al-ṣanāʿa wa-al-ʿamal*), in a way that reminds of Sufi pious practices; finally, the ‘Element’ is identified to the Prophet and the ‘Foundation’ (*al-uss*) to a legatee (*waṣī*), who would most likely refer to ‘Ali.¹⁵¹ The fourfold introduction to the *112 Books* is thus, from our point of view, an extraordinary catalogue of the potential meanings of the ‘Element’, ranging from the Hellenistic philosophical to the Islamic Imāmī. But perhaps, and more simply, it was that the semantically malleable and high-born term was a perfect candidate to be the centre of a cosmological and alchemical discourse.

¹⁴⁹. *ibid.*, 73; Zirnis, ‘*The Kitab Ustuqus*,’ 41.
¹⁵⁰. *ibid.*, 79ff.
¹⁵¹. *ibid.*, 82; Zirnis, ‘*The Kitab Ustuqus*,’ 120.
The Balance of the Letters

In Jābir’s historical context—either the seventh or the ninth century in an Islamic environment—any mention of the mīzān would have evoked an immediate association with Sura al-Raḥmān (Qur’ān 55:7–9), ‘He has set the balance (mīzān) so that you may not exceed in the balance: And establish weight (wazn) in justice and do not fall short in the balance.’ Jābir’s balance, just as in this Qur’ānic context, was meant to measure all of creation; the entire universe could be deciphered through its laws.¹⁵² In keeping with the customary 'scattering', the ideas on the Balance are scattered throughout the 144 treatises of the Kutub al-mawāzīn, but the practical gist is that it is a method of letter manipulation, called the ‘balance of the letters’ (mīzān al-ḥurūf), and based completely on the numerical values of the letters. These values allowed the alchemist to calculate or decipher the intrinsic properties of animals, plants, minerals and all creatures, thus acquiring knowledge with a view to the obtention of the alchemical elixir. The relation to the transformative power of alchemy is established on several levels: this manifestation of the operative science of letters and words (sīmiyā) is a science of the transmutation of language just as al-kīmiyā deals with the transmutation of matter.¹⁵³ If we recall the patronage of Hermes, god of alchemy, upon language, it is easy to see the shared characteristics between the two realms: the mobility, the ever shifting bearings, the uninterrupted flow of movement, either as a phonetic stream of sounds or a graphical sequence of characters which metamorphose into each other incessantly, like snakes.¹⁵⁴

The principle underlying Jābir’s Balance is ‘the coordination between the letters forming the words and the Natures or elements constituting the things named.’¹⁵⁵ It is not only a manifestation of the seminal idea explored in the Cratylus, of language as a direct prolongation of reality and a doorway to reality, but it is also the clearest manifestation we have found so far of the total identification between letter, number and concept; it is the science of names as alphanumeric realities. It can naturally be viewed as a kind of particle physics, and this is why it has often been compared to the atomism of Democritus and to that of the Timaeus.¹⁵⁶ In fact, the lineage proposed for the precedents of Jābir’s Balance retraces closely some stages of the previous pages of this work: the association with the Pythagorean tradition is there, as is the affinity with Philo’s cosmology.

More specifically into the Balance theory, it is through the four elements—or more
precisely the elemental qualities—that beings relate to their numeric values. The isopsephic analysis of the words allows the alchemist to determine the quality of the particular mixtures and their deficiencies or excesses, and so to bring them closer to the perfection of the elixir. Jābir expresses forcefully the interpenetration between the ‘natures’ (ṭabāʾiʿ) (sc. of the four elements or the qualities) and the letters (ḥurūf): anzur ilā al-ḥurūf kayfa wuḍiʿat ‘alā al-ṭabāʾiʿ wa-ilā al-ṭabāʾiʿ kayfa wuḍiʿat ‘alā al-ḥurūf, ‘See how the letters are imposed (wuḍiʿat) on the Natures, and how the Natures are imposed on the letters,’ and later ‘how they transform into (tantaqal) each other.’ As could be expected, the relation between the Jābirian writings and the Arabic grammatical tradition is strongly apparent in some of the treatises and in the terminology. Similarly evident is the connection to the Greek arithmological tradition, running through a line of Pythagorean references. But what is characteristic here is the accomplished synthesis. In later times, a comparable, if less comprehensive, doctrine developed in a Jewish milieu, invoking as a forerunner Bezalel ‘the prototype of alchemists’, whom we had encountered in previous pages as the divinely inspired craftsman ‘who knew how to combine the letters by which heaven and earth were created.’

In these two doctrines from the Jābirian corpus we find expressed in more than one way the intrinsic dualities of the concept of στοιχεῖον: one deals with the more philosophical sense and the other with the more grammatical; but also it is as if one of them had to do mostly with the singular στοιχεῖον, the one universal ‘element of foundation’, while the other has to do with the multiplicity manifest in the alphabetic series, στοιχεῖα. What is common to both is the alchemy, meaning by this the power attributed to the ‘element’ and the ‘letters’, and also their liminal, transformative, properly alchemical character.

More generally now, trying to take stock of the previous chapters before moving on to the last part, a similar pattern can be discerned in the different stories of the στοιχεῖα in the Abrahamic scriptural and in the Hellenistic traditions: it is a pattern of incorporation, of embodiment of the doctrine of the letter-numbers, moving from lofty cosmological

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159. The key name of the ‘balance’, mīzān, is directly related to wazn, one of the most fundamental terms of Arabic grammar, meaning originally ‘weight’, but used to denote a morphological ‘pattern’ or ‘template’, and in prosody a ‘metre’; see *EALL*, 2.448–50.
and theological speculations to a more humanly accessible reality, either through the soteriological and ascetic religious developments or through the transformation of alchemical techniques. It is not a complete process, and this is why I shall directly continue to explore the developments as if in a second historical stage, when every particular tradition had continued to evolve and to subtly interpenetrate each other in countless ways around the Mediterranean.
Part III

World Construction:
Systems of Cosmic Design
Introduction: System Building

After having scratched the surface of the ‘scriptural’ foundations of the alphanumeric identity in Late Antiquity and the early Middle Ages, I shall employ the following three chapters to illustrate with a few significant examples the elaborations that signal the transformation of the concept we follow. This transformation is manifest in doctrinal crystallization, as in systematic expositions of previously unconnected or dimly connected aspects, and it is a transformation which can be seen at once as an indication of a mature sophistication, and as the heralding of the end of an ‘alphanumeric age’ stricto sensu.¹

As in Part 2, I will again devote one chapter to each of the three Abrahamic faiths, more for methodological ease than to emphasise very clear doctrinal distinctions. Rather, as shown variously by the amalgamation of the Hermetic tradition into the Jewish, Christian and Muslim doctrinal corpora, the High Middle Ages present us again and again with the inspiring evidence of a fully shared intellectual life among scholars of the three faith communities. My exposition will be centred, with a few necessary complements and asides, on key passages from the Sefer Yetsirah, certain doctrinal developments from Aquinas’ Summa Theologiae and some passages from Ibn ʿArabi’s works.

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¹ More details about this below, p. 251.
Chapter 7

Sefer Yetsirah: The Bright Jewel of Alphanumeric Cosmopoiesis

The Sefer Yetsirah (henceforth SY) would surely rank among the very first of a list of works whose size is out of proportion with their cultural impact; even the longest of its various versions is just above two thousand words,¹ and the shortest of its versions retains perfect readability even when set on one single page, as in the illustration on the following page which contains the text in full. The SY would also rank very high among books whose obscurity of origin is in contrast to the brightness of their influence. It is like a precious stone: we know next to nothing about its origin, with only guesses about its authorship and date of origin, and yet, like a brilliant² with a structure based on a pattern of thirty-two, it seems to have gathered and refracted within its symmetry the light received from previous centuries of alphanumeric wisdom literature, and then to have reflected it with renewed force and charm for later generations.

1. See D. Karr, 'Notes on Editions of Sefer Yetzirah in English,' 1; this most useful bibliographic survey has been kept up-to-date since 1991 and gives a comprehensive overview of the available literature in English, with a few references to secondary literature in other languages too.

2. 'Brilliant', used as a noun, refers here expressly to the diamond cut designed in the early twentieth century to optimise the light return of the gemstone.
ששה תמורות לשונות רומית שנה פשעותobsolete כדפרת המנחה שפעלה ייחוס השלום והכובד אחר רבים בערב Nguyên של ודדים בן טון שלוש עשר צבאות ומנהיגים והקרוע מתויה רוחו בצפון המלרוף עשרים ושבעה בוניםתחתית שלמה במלחמה בעולמן שבניה עשרה אבנים בכפולות טובות בגדיה בביתו של ארבע שנים ראשית של שבעים וחמש שנה כפרת גימל אחד אחר מאות אויר אויר התו יווה תיאורן של יד גבינה כף קשיש בגרה את ומותם של כל מה שהיה שם סוד יוצאין מאויר ובילה בכף בכותב כף הכתר וпракти כמותה בתקופה העתיקה במרוח כמיןệnhיל מצויה על אחת בו כף השתייה במיתם ובחזק והדבר כים מסוף הכתום בגדה אלהי לבדו והגויה עם אלף והימירן בלום ומחותלملדבר יוצאת אלפים בטבע במדッグ בצפון בי שמשך השתייה של יד גבינה כף קשיש בגרה את ומותם של כל מה שהיה שם סוד יוצאין מאויר ובילה בכף בכותב כף הכתר וпракти כמותה בתקופה העתיקה במרוח כמיןennent ותרומת שיעה ותרומת יוחסין ובו בתרומת שיעה ותרом
Thanks to Hayman’s and Gruenwald’s works, effectively the two most significant landmarks in the textual history of SY, and unless new manuscripts are discovered, we are nowadays probably as close as we can be to a comprehensive vision of the three main recensions in which SY appears from the earliest evidence. The earliest evidence of the existence of SY is given by one of its commentaries, the one authored in Arabic by Sa’adya Gaon and dated 931, which is our terminus ante quem. Because the time of Sa’adya’s commentary the textual tradition already exhibits three well attested strands, it seems obvious that the origin must be found before the ninth century, and in fact, it is the quest for the earliest possible date of existence of the text that has been occupying the experts for decades, with arguments ranging from the second century AD to the ninth century. Because most arguments for an earlier dating are based on doctrinal parallels, I shall leave for later further references to them.

It has become almost fashionable to elaborate on the ‘fluidity’ of the textual state of SY, which, according to Wolfson, ‘should be seen rather as a composite of distinct literary strands,’ instead of being considered a text in any modern sense. I shall not enter into textual discussions other than in the few passages related to this research, but what could be observed is that the textual confusion, for all its bewildering abundance, was never enough to obscure a doctrinal core of the SY which is what evidently has attracted readers through the ages. Regardless of how many authors contributed to the ‘mythical’ or ‘illusory’ ‘original text,’ it is clear that at some point in the history of the book, a number of paragraphs encapsulated a discernible doctrine which was worth the while of many of the greatest Jewish scholars who commented on it. I quite agree with Segol’s intuition that a great part of the text’s ‘meaning’ has to do with its structure, that there is ‘a discernible pattern in its organization that is key to understanding its

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4. Hayman himself refers to Gruenwald’s edition to complement his own vis-à-vis the inclusion of some manuscripts and readings (p. 9ff.), so in fact, regarding all philological points, they may be treated as a two-volume work.

5. It has been said that aside from the Tanakh, no other Jewish work has been commented as extensively as the SY. Cf. also Wasserstrom, ‘Sefer Yesira and Early Islam: A Reappraisal,’ for dating matters.


9. See *ibid.*, 222.
meaning and function." I would add that the other essential factor constituting the core of the book is a small constellation of key concepts, like sefirah and ot yesod (‘letter of foundation’). It is in no small measure due to the symbolic power of these key concepts, and to the subtle web of their linguistic interplay—like glints within a gem—that SY had and continues to have such unabating influence.

In the following pages I will examine some particular passages of the book and its commentary tradition in the light of our alphanumeric quest, focusing on some of the Hebrew terms and their place in the history I have been drawing in previous pages. Before introducing some reflections on the title and authorship of the book, it will be better to start by presenting directly those verses of SY which are most relevant to this work, to comment on them, and then to introduce as needed other notable passages.

Selections from the Text

1) Yah, Lord of Hosts, carved (ḥaqaq) thirty-two wondrous paths of wisdom in three count-modes (sefarim): in writing (sefer), in number (sefar), and in speech (sippur). 2) They are ten absolute numerations (sefirot beli mah) and twenty-two elemental letters: three mothers, seven doubles and twelve simples.

19a) Twenty-two letters: he carved them out, he hewed them, he combined them, he weighed them and he exchanged them. 59) Law of ten, three, seven, and twelve are present in the heavenly axis (teli), in the

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11. Segol speaks of ‘letterforms’ along similar lines, see *ibid.*, 143.
sphere and in the heart. 48a) He made them as if in strife, he arranged them as in battle array, ‘God made the one side by side with the other.’

61) When Abraham our father understood and formed and combined and investigated and pondered, and the matter came into his possession, the Lord was revealed to him, and He recited over him this scripture: ’Before I formed you in the womb I knew you; and before you came forth out of the womb I sanctified you, and I ordained you a prophet unto the nations.’

The SY presents itself from the outset as a compendium of cosmogony and cosmology based on the Hebrew language. There are thirty-two paths of wisdom which comprise the ten primordial numbers (sefirot) and the twenty-two Hebrew letters. So from the very start we seem to encounter here a set of ‘elements’ (the ‘paths’) which comprises numbers and letters, just as the στοιχεῖα, but in this case they no longer coalesce, but appear to be clearly distinguished. I insist quite deliberately on the appearance of numbers and letters, because the text does not actually speak of them, but rather uses two very unusual expressions, as I have tried to reflect in my translation above: sefirah is not the same as mispar, number, just as ot-yesod is not the same as a simple letter, ot.

In order to better appreciate their qualities and how they relate to this research, let us now dwell individually on each of these three sets of elements: the paths, the numerations and the letter-elements.

The Thirty-Two Wondrous Paths of Wisdom

Quite remarkably and in direct relation to our main concern, Leo Baeck had already suggested that ‘the word n’tivot (“paths”) might be a transference of the Greek στοιχεῖα,

14. Jer. 1:5. Aside from specific minor variations which I shall indicate, I follow Hayman’s ‘earliest recoverable text’, that is his attempt at reconstructing the common ground of the three accepted recensions; see Hayman, SY, 33ff., 49–51.|| Following Gruenwald, ’A Preliminary Critical Edition’, 484, I take here verse 2 as a gloss of the thirty-two ‘paths’.
15. As such, Wolfson has related it to the esoteric rabbinic tradition known as ma’aseh bere’shit, the ‘work of creation’, noting also that some parts of it belong to the ma’aseh merkavah, the ‘work of the chariot’; see E. Wolfson, ’Jewish Mysticism: A Philosophical Overview,’ in The Routledge History of Jewish Philosophy, ed. D. Frank and O. Leaman (New York and London: Routledge, 1997), 450–498.
16. Unlike Hayman, who treats otiyot yesod as a nominal clause, ‘the elements are the foundation,’ I read it consistently as a compound name, not only on conceptual grounds as I shall explain, but also based on stylistic reasons: as noted in Y. Liebes, תורתהיצירהשלספרהיצירה (Ars poetica in Sefer Yetzira) (Tel Aviv: Schocken, 2000), ch. 2, every section of the text is punctuated by the repetition of such compounds: ‘ten absolute numerations’, ‘twenty-two elemental letters’, ‘three mothers’ and so on. See also J. Dan, The Concept of Number in the Book of Creation); Daat: A Journal of Jewish Philosophy & Kabbalah, no. 34 (Winter AM5755 / 1995CE): 5.
which depicts the *Urprinzipien* [primary or first principles] as well as the *letters* and the signs of the *zodiac*. According to his interpretation, the root word στοίχος, ‘line’ and its verb form στοιχεῖν, or ‘to advance in a row,’ could have meant the same to some Greek and Hebrew readers as the word *n’tivot*. In his recent monograph, Yehuda Liebes suggests that the central theme of *SY* is not the universe itself in its construction, but rather the ‘stones’ themselves used to build it, namely the thirty-two paths, which he calls *ha-yesodot ha-nistarim shel hokhmat mevinah ha-yaqum*, ‘the hidden elements of the intelligent wisdom of the universe.’

Such emphasis on the importance of the ‘paths’ is at odds with some contemporary arguments for two separate original textual strands, one for numbers and one for letters, which were made into a single discourse by means of this first introductory paragraph, as if a misguided late author had come up with the invention of a sort of genus, the ‘wondrous paths’, that encompass ‘number’ and ‘letter’. Considering the fact that §1, with all 32 paths, is attested in all the available textual witnesses, this attempt may seem hasty. And for us, from the vantage point of the alphanumeric elements in this work, the unitary concept under suspicion presents no problem. In the *SY* itself, this is the particular interest of §§59 and 48a, for in them number and letter are once again subsumed within the same group: after the description of the cosmic correspondences between *sefirot* and *otiyot yesod* which take up most of the book, §59 sums up saying, ‘this is the law of 10, 3, 7 and 12.’ The relation to the first paragraph is underlined by the relation between *ḥaqaq*, ‘to carve’, the action whereby God creates the thirty-two paths, and the word for law, *ḥoq*.

Like in the Arabic cognate *haqq*, the original meaning of this root, as in the Heb. verb *ḥaqaq*, has to do with etching, inscribing and tracing. The thirty-two are ‘inscribed’ and thus sanctioned as law by God in the universe in a manner comparable to that of the great legal inscriptions, the Mosaic Decalogue or the Roman Twelve Tables. I would also note here the important relation to the tracing of the characters, the *ductus*, considered as the *path* of the pen or the stylus. This correspondence is reinforced when we realise that the adjective applied to the paths, *pe’li’ot* comes from the root *p-l-*, ‘to

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22. The order in our selection follows Hayman’s ‘earliest’ text proposal.
set apart, to split.’ Considering the cosmogonic context, and what appears to be the primordial bringing into being of a set of elements by separation, we are reminded of the story of Thoth in the *Philebus*, discerning the στοιχεῖα from the formless acoustic continuum.

There is a noteworthy textual variation at the very beginning of the text, which in many manuscripts, and certainly in most modern editions, begins with a locative or instrumental preposition, *bi-shloshim ushtayim…*, i.e. God carved ‘in the thirty-two’ or ‘by means of the thirty-two.’ Most commentators interpret that the 32 are then *instruments* of the formation of the universe, which echoes the letters being called ‘helpers’ of the Divine Maker, and also reminds of Philo explaining that the λόγος is the instrument used by God. However, as has been observed by Hayman, this initial preposition brings unsolvable syntactic problems. It is much preferable to read the 32 paths as the object of *haqaq*, which then has an adverbial complement in *be-shalosh sefarim*.

The Three Modes of Inscribing

According to Jospe,²⁴ Saʿadyā established a tradition of interpreting the three *sefarim* as *sefer* (writing), *sefar* (number), and *sippur* (speech),²⁵ a tradition followed by all the early philosophical commentators: Dunash, Donnolo and Judah ben Barzillai al-Bargeloni (eleventh/twelfth cent.). It was Halevi’s *Kuzari*, not particularly dedicated to the *SY*, which ‘interpreted the three *sefarim* innovatively in Aristotelian terms of the identity of the subject, act, and object of intellection.’²⁶ Jospe also gives a summary of Judah ben Barzillai’s commentary with regard to the three *sefarim*. ‘Sefar is calculation, which is number’ (*s’far ḥeshbon ve-hu mispar*)—‘sippur is language, which is utterance’ (*sippur ha-dibur ve-hu ha-ma’amar*)—‘sefer is writing, which is script’ (*sefer hu kitabah she-hu miktab*). In addition to these of his own, al-Bargelloni reports several other interpretations by unknown commentators who equate the three *sefarim* to different triads: ‘wisdom, understanding and knowledge (*ḥokhmah, tevunah, daʿat*)’, ‘God’s creative word, command and act (*ma’amar, tsivuy, ‘asiyah*)’, or the three sections of the Tanakh, *Torah, Nevi‘im, Ketuvim*.

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²⁵ In Saʿadyā’s Arabic, ‘three things: *khaṭṭ wa-ʿadad wa-nuṭq*.’
Although not along the Aristotelian lines proposed by Jospe, I find that the commentary found in the *Kuzari* is one of the most insightful, and especially useful for this comparative work because it was written in Judaeo-Arabic. Here are some passages relating to the *sefarim*:

In the reality of God, *S’far, Sippur, and Sefer* are a unity, whilst they are three in the reality of man. For man reckons with his mind (*dhihn*), speaks with his mouth, and writes with his hand, referring with all three to one among the creatures of the Creator. Man’s reckoning, his writing, and his word (*lafz*) are thus signs which refer to a thing but are not the thing itself. Whereas the reckoning of God and his speech are the thing in its essence, and at the same time His writing (...) So the three *sefarim:* *S’far, Sippur,* and *Sefer* are conjoined into one thing, and this product of reckoning comes to be as if one of unmixed self (*dhū al-nafs al-khāliṣa*) had calculated it (*qaddarahu*), uttered it (*naṭaqahu*) and written it. And thus this book says that God Most-High: ‘created His world with three *sefarim:* *S’far, Sippur,* and *Sefer,*’ which are all one in the reality of God. This is the one principle (*mabda’*) of the ‘thirty-two marvellous ways of wisdom,’ which are the ten Sefirot and the twenty-two letters.

Apart from approaching the passage from what appears to be a deeply monotheistic position, it is further clear evidence for the understanding that the 32 paths are the sum of the *sefirot* and the ‘letters’. Some similar comprehension might be behind the Arabic title given by Saʿadyā to his translation of *SY, Kitāb al-mabādi’*, the Book of Principles.

Returning to the metaphysical notion of principle, it is important to establish a remarkable parallelism between this idea of the three ‘count-modes’ and the passage of Aristotle’s *Metaphysics* I have repeatedly discussed earlier, where we find the definition of στοιχεῖον. When the definition is given, the following three examples of composites are used: φωνή, the voice, διαγράμματα, as the graphic aspect, and ἀποδείξεις as the logical aspect of geometrical demonstrations. Suffice to say that the three examples match quite closely the threefold aspect of the root *s-f-r* as presented in *sefarim:* *sippur,* the spoken word, *sefer,* the written word, and *s’far* the numeric/logic aspect. The comparison is particularly apropos given that the context in both cases is about the definition of very similar principles.

There are two other triads which also may shed light on the range of meanings of the *sefarim,* one from the field of grammar, and the other from the field of arithmetic. The attributes of *litera* common among medieval Latin grammarians were three: *nomen,* which identified the letter for discussion; *figura,* the written shape; and *potestas,* the

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27. Δ3, 1014a26ff.
sound. The last two may be seen to correspond with sefer and sippur respectively, but because in the Latin tradition the alphabet was not used to write numbers, a correspondence with s’far is not easily discernible.

Finally, Merlan considers that the three sefarim correspond to the three kinds of number found in Plotinus: ἀριθμοὶ, the ‘first and true numbers’, ἀριθμοὶ ἀριθμητοὶ, numbers in countable beings, and ἀριθμοὶ ἀριθμοῦντες, things used to count, like a standard of measure. Once again, but now from the numeric aspect, a clear correspondence with the sefarim seems precarious, but in any case, I shall soon have an opportunity to return to late Platonic associations.

I have chosen to translate sefarim as ‘count-modes’ thinking of the various meanings of ‘counting’: the arithmetical one, as in enumerating, and also the narrative one, as in recounting a story. In fact, the word ‘account’ would also be a very suitable alternative, since it can mean: 1) a written account (sefer), 2) a tally (s’far), and 3) a narration (sippur). The basic structure of the paragraph would then read, ‘God formed the thirty-two wondrous paths of wisdom in three accounts: writ, number and narrative.’

The Absolute Numerations—Sefirot

Much has been made of this word, and there are frequent claims of it being introduced to Jewish literature through the SY. For Baeck, who calls it a neologism, it replaces the customary mispar (number) in order to indicate that the numbers meant are not the numbers of mathematics. According to Sa’adya, the ten sefirot correspond to the ten Aristotelian categories (ma’lāmāt) and also to the ten commandments.

If it is true that the concept of sefirah in the text is not limited to what we know as a number, the word itself is used in the Long Recension (§58b) with the meaning of ‘count’: ‘the count (sefirah) of the universe is ten; the count of the year is ten...’ As observed by Vajda, it is a common term in the Talmud with the same meaning, and used notably as a singular only. What the SY does is employ the term in a completely new sense.

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28. Abercrombie, ‘What is a “Letter?”’, 59. These were an adaptation from the Greek Stoic triad: ὄνομα, χαράκτηρ, στοιχεῖον, see Robins, The Byzantine Grammarians, 54.
way, to designate the first ten of the 32 'paths', called more specifically sefirot beli mah,\(^{34}\) literally ‘numerations without anything’. Saʿadyā translates as aʿdād al-maḥẓurah, ‘enclosed numbers’ or ‘forbidden numbers’, thus obviating any ambiguity inherent in the Hebrew term in favour of an ‘arithmetical’ reading. For Baeck and Merlan, once again, there is a clear relation here, also because they are ten, with later Greek metaphysics, and specifically with Proclus. Sefirot beli mah would accordingly refer to the ἀριθμοὶ ψιλοί or ἀριθμοὶ ἄνευ πραγμάτων, the ‘unalloyed numbers’ or ‘numbers without things’, or perhaps to the αὐτοτελεῖς ἑνάδες, the ‘self-perfecting monads’ located between the primal essence [Urwesen] and the Intelligible, mediating the transition from the original unity to multiplicity; beli mah corresponds quite literally to ἀμιγεῖς, ‘pure’ or ‘unmixed’. Regarding the numbers as cosmic building blocks, Merlan refers to a quotation by Syrianus describing number as κριτικὸν κοσμουργοῦ θεοῦ ὄργανον, the ‘decisive instrument of the world-creating deity.’

According to these German scholars, the high cosmological status of numbers can only be explained by the influence of Platonism and Neoplatonism, namely of Proclus and his immediate circle. Merlan observes that there is a possible Jewish connection, because Domninus, Marinus, Zeno of Alexandria and other close associates of the main later Neoplatonists were either of Jewish origin or were related to Jews.

Another notable reference to Greek sources is the suggestion by Liebes that the number of the sefirot can, in their close relation to the letters, be compared to the existence of ten Greek diacritic marks. It is perhaps due to this association that Liebes speaks of the ten sefirot as the ‘inner aspect of the 22 letters.’\(^{35}\) Now, any direct bearing of the Alexandrian prosodic marks on the origin of SY would make for a very early dating, but the farther back we move from the tenth century, the harder it is to justify the lack of mentions of the book in the intervening centuries.

There are certainly doctrinal parallelisms of various solidity along the lines mentioned above, but perhaps the most interesting effect of establishing the relation to Proclus is that it suggests a new possible terminus a quo for a treatise like the SY, i.e., the fifth century CE.\(^{36}\)

This derivation of our book is also significant in terms of intellectual history. At the waning of the ancient world, and casting his shadow far into the distance, stands the figure of Proclus. By way of the writings of Dionysius the Areopagite, Proclus had an influence on the Christian Middle Ages, and through the Sefer Yetzirah he would also have made an enormous impact on later Jewish literature.

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\(^{34}\) See Hayman, SY, 65–6, for the alternative belimah and possible provenance.

\(^{35}\) Liebes, Torat ha-yetsira, 14.

\(^{36}\) This is close to Vajda’s suggestion of an approximate origin between 450 and 700; see Vajda, ‘Recherches,’ 40.
Once again, a sufficient characterisation of the sefirot is given by the SY itself. In §7 they are described as ‘eser she eyn lahen sof, ‘ten that have no end’—they are ten endless valleys or chasms;\(^{37}\) and in §16 the ten are named, they are, first, the Spirit of the Living God (Ruaḥ Elohim Ḥayyim); then the three elements wind, water, fire; and to complete the decad, the six directions of space: above, below, east, west, north, and south. Hayman sums up calling them 'pre-conditions for creation.' They seem to constitute a numeric middle realm upon which, as Plotinus says of numbers, 'beings have their “foundation, source, root and principle” (βάσιν δὲ ἔχει τά ὄντα ἐν αὐτῶι καὶ πηγὴν καὶ ῥίζαν καὶ ἀρχήν).’\(^{38}\)

It may seem crucial for our enquiry to establish how numeric, just how arithmetical, the sefirot really are,\(^{39}\) but this manner of asking is rather anachronistic, especially in the light of Chapter Two above, where we have seen that ‘number’ itself was not in Antiquity quite the same as we understand today as number. So, in asking the above question, what we really want to know is just how close to the medieval concept of number was the concept of the sefirot. Sa’adyā for one identified them very clearly.\(^{40}\) When it is said that ‘SY does not speak of the sefirot as of numbers in the full sense of the word,’\(^{41}\) the answer should be that it actually does, but in the full ancient Pythagorean sense of the word. That is, unless we decide that Platonist and Pythagorean philosophers who elaborated on the cosmic function of numbers were not speaking of numbers either. The SY has to do with arithmetic somehow like the Theologoumena arithmetica does, that is, insofar as the metaphysical decad can be considered anything arithmetical. This is why I have translated sefirot beli mah as ‘absolute numerations’ and thus avoided rendering sefirah as plain ‘number’, but rather opted for an English word which is a clear cognate and yet unusual enough to be imbued with an altogether abstract meaning. A useful alternative to render sefirot would be a word related to ‘counting’, perhaps ‘ten absolute counts,’ thinking also of the Indo-European cognates, all derived from Lat. computare, as mentioned in a previous chapter.\(^{42}\)

The Twenty-Two Elemental Letters

It is a commonly held view that from the SY description of how the elemental letters interact within creation, arose the notion that ‘the letters are not merely the tools of

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\(^{37}\) Cf. above, p. 156, the notion that every letter is a potential infinite.

\(^{38}\) Enneads VI. 6, 9.

\(^{39}\) Busi, Qabbalah visiva, 36, argues for a non-numerical meaning altogether.


\(^{41}\) Dan, ‘The Concept of Number,’ 13.

\(^{42}\) See above, p. 113.
divine creativity’, that ‘they are treated in SY as the material stuff of reality.’ If this is so, it is imperative that we are watchful again and ponder what could have been the meaning of the expression ‘material stuff of reality’ in the age and context when the SY was written. The modern meaning of ‘matter’ itself is notoriously undecided and grievous in contemporary physics. So, were the elemental letters material? Certainly they were, if we care to discern properly the ancient meaning of the term—which shall be the aim of the next chapter.

The best way to understand the place of these ‘letters’ in SY is to look at their description and functions in the book itself. §2 introduces the specifics of their threefold division in groups of 3, 7 and 12 letters—in this they remind us strongly of similar alphabetic classifications we have seen in Greek and Arabic; so much so that a correspondence between the seven Greek vowels and the seven double Hebrew letters has been explored in detail. §19a introduces the divine actions with regard to the 22 letters: they are first carved and hewed, then they are combined, weighed and exchanged. The details of the combinations of the letters fill some very famous pages of SY, and the development of highly original illustrations in the editions is a testimony to the suggestive power of the text. It must be noted that the verb translated as ‘combine’, tsaraf, has an important original meaning in metallurgy, where it means ‘to smelt’ or extract metal from its ore, and the noun tsarifah means also transmutation and alchemy.

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45. For many examples of diagrams which try to represent the oftentimes cryptic explanations in the text, see Segol, Word and Image, and Busi, Qabbalah visiva.
These elemental letters transform into each other, exchange places with one another, and in so doing they act like signatures of the three elements, the seven planets and the twelve universal divisions on every being. The wheel reproduced above is thought to be related to the four alphabetic wheels described by Judah ben Nissim (thirteenth century) as 'cosmic entities on whose movement depend both intelligible reality and the material world.'

I had already had the opportunity to present a number of examples of the cosmogonic role of the letters of the alphabet in the Hebrew tradition, mostly from the rabbinic literature. A plausible historical development is that at some point in late antiquity, between the death of Proclus (485) and some decades before the publication of Saʿadyā’s Commentary (931), the Jewish tradition which assigned to the Torah a key role in the creation of the world merged with insights from Platonic sources into the earliest form

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The Title: ‘Creation’ or ‘Formation’?

A question directly related to the nature of the 32 paths is the title of the book, why yetširah? What sort of ‘creation’ is the one treated in this work?

The basic root tsur is very close to the Greek idea of ποίησις, a creation related to the arts, to forming and shaping,47 like its Ar. cognate šūra. Maimonides, in his Dalālat al-ḥā’irin, the Guide for the Perplexed, on occasion of distinguishing between awwal and mabda’—the ‘principle’ in its sequential or temporal meaning and its metaphysical meaning—⁴⁸ examines the various biblical verbs for creation and concludes that ‘the word yetširah corresponds to shaping and delineating’ (al-yetširah innamā taqaʿu ʿalā tashkīl wa-takhṭīṭ). I need hardly observe that the two words tashkīl and takhṭīṭ are common terms in the art of lettering, referring to the addition of diacritics and to the basic tracing of the letters.⁴⁹ To complete his explanation, Maimonides gives as a first example the expression Yetšer Or, the ‘Shaper of Light,’ as the well-known epithet of God and the title of the prayer we have already discussed.⁵⁰

Just as God is called in Hebrew Yetšer, the divine Potter or Giver of Form, so in Arabic we find as one of the divine names al-Muṣawwir, ‘He who gives form.’ Yetširah refers to a demiurgic creation for which a design with parameters and calculations and tools are needed.⁵¹ In the Talmud we find the clearest association in tsayyar, ‘the Designer,’ a divine name derived from the same root as Yetširah,

What is the meaning of there is no rock [tsur] like our God? There is no designer [tsayyar] like our God.⁵²

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47. See above pp. 112 and 114. In Genesis Rabba 1:9, God is called an ‘artist’, tsayyar, with the same root.
49. Let us also retain for the time being that takhṭīṭ is also used in land surveying (ʿilm al-misāḥa), where takhṭīṭ bi-al-taqāṭiʿ means the ‘tracing of the intersections,’ referring to the initial laying of a square grid.
50. See above, p. 114.
51. Cf. Sa‘adīa, Commentaire sur le Séfer Yesira ou Livre de la création par le Gaon Saadya de Fayyoun, 13, ‘A partir de dix nombres primordiaux sans limite et des vingt-deux lettres de l’alphabet hébraïque aux combinaisons non moins illimitées, le Créateur—ou plutôt le Potier (yetšer)—construit comme à partir de briques, l’univers entier.’
52. bBerakhot 10a:22; cf. bMegillah, 14a:20; see Busi, Qabbalah visiva, 3.
A less common version of the title is more specific, *Sefer Yetsirah Otiyot*, the *Book of Formation of Letters*—where the ambiguity in the preposition of is an attempt to reflect the original double entendre: it can mean ‘the book where the letters are formed,’ or ‘the book describing how to give form with the letters.’

It is worth keeping in mind, as a crucial cosmogonic reference in Genesis, that throughout the Hexameron only the verbs בָּרָא bara’ and עָשָׂה ʿasah are used, including the creation of man and woman on the sixth day. It is only after the seventh day that the verb יוצר yezera’ appears: Adam is ‘fashioned’ (Gen. 2:7). The Septuagint keeps the distinction, using ἐποίησεν and ἤρξατο, and then in 2:7, ἔπλασεν for יוצר. The Vulgata has creavit, fecit and formavit respectively.

An often mentioned variation of the title of the book is *Hilkhot Yetsirah*, the ‘Laws of Formation,’ with the plural of halakhah, ‘method’, something to walk by, mirroring the etymology of Ar. shariʿa and sunna. This alternative title is notably mentioned in bSanhedrin 67b, speaking of forbidden magic and sorcery practices: ‘What is permitted ab initio is to act like Rav Hanina and Rav Oshaya: Every Shabbat eve they would engage in the study of the halakhot of creation, and a third-born calf would be created for them, and they would eat it in honor of Shabbat.’ Even though this reference has been questioned, it is important in that it opens a view onto the field of magic which has very often been associated with SY. This relation is only to be expected for the same reason that in Hermes are fused the patronage of language and of magic and occult arts. Magic as an art of transmutation of the immaterial will into material effects, has always something alchemical about it. In fact, in this light it is not difficult to see how the procedures applied by God to the letters sound very much like alchemical and magical operations with all that etching and weighing. Segol draws attention also to the architectural metaphors and the conceptions of creation by the creation of boundaries, particularly as occurring in Job 38, a very important biblical reference for the SY and its commentators.

Finally, yet another title of the book, *Sod ha-ʿIbur*, the *Secret of Intercalation*, or of Hebraization, ‘on which the whole world depends,’ gives prominence to a procedure

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54. ibid., 193–5.
which is obviously related to the letter manipulations mentioned above.

**Authorship and Conclusion**

When thinking about the authorship, we refer again to §61, where Abraham appears as the adept who attains mastery of the book and thereby is rewarded. One first question that poses itself is ‘why Abraham?’ One powerful reason may be, always from the particular perspective of this work, that the three Abrahamic religions are called in Islamic tradition the ‘religions of the book’ or, perhaps more accurately, ‘religions of the writing.’ We have already seen in the second part of this work how intricately related are the alphanumeric doctrines of the Abrahamic religions, and they in turn with the Greek tradition. Abraham is a watershed figure for the religions of the Early and High Middle Ages, and the ascription of the book to him refers the reader to a very fundamental doctrinal core, properly esoteric, where theological differences are less urgent.

The closing scriptural citation from Jeremiah, is remarkable on various grounds,

‘Before I formed you in the womb I knew you; and before you came forth out of the womb I sanctified you, and I ordained you a prophet unto the nations.’

The verse starts by using the root verb that gives title to the book, *tsur*, and making clear, after displaying all the rules of creation, that His giving form is not like man’s, and it ends on a note related to the considerations just above, proclaiming the mission of Abraham *le-goyim*, for all the nations, not only for the Jews.

Let me conclude with a story which gives an idea of the reverence shown to the SY in the Jewish tradition.⁵⁷

*When Abraham was born, God consulted with the Sefer Yetzirah which said, ‘Give (me to him).’ So God handed it over to Abraham, who sat alone and meditated on Sefer Yetzirah, but he could not understand it at all until there came a heavenly voice and said to him, ‘Do you seek to compare anything with me? I am One and I created Sefer Yetzirah and investigated it and made everything which is written in it. You cannot understand it on your own. Go to Shem and look at it together and understand it.’ Immediately Abraham went to Shem his teacher, and sat down with him for three years, and they found out how to create the world. (fol. 26r)*

Chapter 8

Alphabetic Consecration & Metaphysical Foundation

The ecumenical presence of Abraham as a patron figure of alphanumeric science is found, together with other aspects of the ‘thirty-two paths of wisdom’, in a most remarkable rite belonging to the liturgy for the dedication of a new church. The metaphysical associations of this rite, and in particular their relation to architectural imagery, will be explored in the following pages.

The Abecedarium in Church Dedication

The oldest known mention of this rite is found in Ordo XLI of the Ordines Romani, the early medieval Roman liturgical guidelines.¹ Here is this original succinct description from a seventh century manuscript:

Deinde incipit pontifex de sinistro angulo ab oriente, scribens per pavimentum cum cambuta sua abcdurium, usque in dextro angulo occidentalis; incipiens iterum similiter de dextro angulo orientalis abcdurium, scribens usque in sinistro angulo basilicae occidentalis.

Then the priest starts from the left eastern corner, writing the alphabet on the floor with his staff, until he reaches the right hand western corner, and then he starts again from the right hand corner on the east, writing the alphabet in the same way until he reaches the left corner of the western end of the church.

In later liturgical literature, other details are added, like the fact that the letters are traced on two previously laid stripes of ashes, or that one of the alphabets is the Greek alphabet, and in some manuals there are graphic aids for the officiants, like the following diagram,

![Diagram of a decussate crux](image)

From an 1859 Pontifical

In general, it is clearer in the later descriptions that, as in the illustration, the tracing of the two alphabets is done in modum crucis, and more specifically in the form of a decussate crux (crux decussata). The origin of the word decussis, meaning the decad, or simply ‘ten’, is particularly significant in our context. It comes from the compound decem and as, ‘ten units’. Vitruvius (3, 1) explains: *ex singularibus rebus, quae μονάδες apud Graecos dicuntur, perficitur decussis*, ‘the decad is brought to completion by the

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3. See W. Berschin, *Griechisch-lateinisches Mittelalter: Von Hieronymus zu Nikolaus von Kues* (Bern/München: Francke Verlag, 1980), 37, who calls this ‘most significant testimony of the medieval keenness to relate the Greek language to the Latin liturgy,’ and who suggests a direct relation to the ‘ancient doctrine of the στοιχεῖα.’

single entities called μονάδες in Greek. Because ten was represented by the crossing lines, the symbol X came to be another meaning of decussis, whence St Andrew’s crux decussata.

In the dedication rite there is thus a convergence between the alphabet and the decad, the twenty-something letters and the ten first numbers, very much like the thirty-two paths of wisdom mentioned in Sefer Yetsirah. This combination summarises the form of the rite: the two alphabets—that is the elements—written on the pattern of a cross or a Greek uppercase chi, Χ. This form is still in use today with some simplifications, but the origin and meaning of the rite have long been a subject of speculation.

The shape of the chi has been associated, even from the early Church Fathers, with the important cosmological mention of this same pattern in Timaeus (36b), with all its Pythagorean echoes, where the two circles of the World Soul are said to rotate on crossing orbits, similar to the way in which the ecliptic and the celestial equator cross in the sky.

A meaning ascribed repeatedly to the bilingual alphabetic cross over the centuries is the union of different peoples under the Christian faith, like the two Testaments of the Bible, or like the Eastern and Western churches. It is following this same reading that the layer of ashes (or often sand and ashes) upon which the alphabets are inscribed is identified to Abraham, the biblical Prophet who says ‘I am nothing but dust and ashes’ (Gen. 18:27). Once again, it is as if , in his intimate association with the letter-elements and, in this strange rite, the decadic sign, represented a fundamental layer shared between Abrahamic faiths.

Regarding its provenance, it is to be noted first that this ceremony does not form part of the Byzantine dedication rites, and that it only appears in the Roman record from around the eighth century. Some authors have established interesting parallels with the rich Roman literature and practice of land surveying,

The Roman Gromatici

De Rossi gives references to the strikingly similar consecratory rites performed by Greek and Roman augurs when they were establishing a τέμενος, practices later reproduced by the Roman agrimensores or gromatici upon the foundation of cities and any establishment of boundaries, sacred or profane.

6. Cf. Schreiner, 'Abecedarium,' 152–3. It will be remembered that one of the meaning of στοιχεῖα is the constellations of the zodiac.
8. So called after the main instrument of their craft, the groma, used for triangulation.
The drawing of the two fundamental axes, *cardo maximus* and *decumanus maximus* naturally formed the decussate cross,\(^\text{11}\) which is of course the same Greek capital Χ of Χριστός. In this context and in view of my further observations below, the striking resemblance between the groma and the labarum should not be left unmentioned.

The measures and other terrain features established by the land surveyors were marked and codified with special signs called *casae litterarum*, which comprised the


\(^{11}\) The word *decumanus* itself comes from *decem*, because the *decumanus* forms a figure of ten, X, with the *cardo*. This etymology is enough to disprove claims against a relation between the *abecedarium* and the surveyors’ work based on the narrow angle at the crossing of the lines.

entire Greek and Latin alphabetic series. The relation between language and temple consecration is firmly attested, with several examples, among which this by Servius:

*loca sacra, id est ab auguribus inaugurata, effata dicuntur.*

Sacred places, that is those inaugurated by the augurs, are said to be ‘uttered’. This certainly is in line with the basic Hermetic task of signposting and dividing the land, and thus taking possession of it, and with his patronage of language. In fact, the act of the dedication has been explained as an apotropaic ritual, given the conjuring power of the alphabet, followed by *dedicatio*, a ‘spelling’, and *possessio*. This ‘inaugural’ aspect of the rite has well-documented parallels in catechetical and baptismal rites, in which the importance of the ‘first letters’, sometimes resumed as AΩ, is a constant.

**Christening the Land: *mensuratio*/*γεωδαισία***

Even further on the Hermetic association, the establishment of *limites* was considered as the most important among all the rites or actions related to measures (*inter omnes mensurarum ritus sive actus eminentissima traditur limitum constitutio*), but these ‘limits’ are said to be of a liminal nature (*limites autem ab liminibus vocabula acceperunt*), and they are identified with the concept of *signum*, which ‘has no parts’ and is the ‘beginning and end of every observation of measures.’ These ‘signs’ were laid out on the terrain by centuriation (in Latin *centuriatio* or, more usually, *limitatio*) a method of land measurement used by the Romans, consisting of the regular division of the surveyed land in a square grid pattern, *stoichedon* style.

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13. See, J. B. Campbell, *The Writings of the Roman Land Surveyors* (London: Society for the Promotion of Roman Studies, 2000), 232ff. A remarkable contemporary analogue is found in the ‘corner stakes’ which to this day are marked by builders using letters and numbers.


15. See above, p. 137.

16. Martimort, *Le nouveau rite de la dedicace des egilises,* 20. For the apotropaic aspect, see also Schreiner, *'Abecedarium,‘* 155ff.

17. Cf. G. De Rossi, ‘Dell’alfabeto nei monumenti cristiani,’ *Bullettino di Archeologia Cristiana* (Roma), 3rd ser., 6, no. 4 (1881): 135, ‘until the eleventh century it was customary to solemnly show the catechumens the monogram with the two letters AΩ, to begin their instruction in the elements of the catechism.’

18. Clavel-Lévêque et al., *Corpus Agrimensorum Romanorum IV. 1*, 112; Campbell, *Writings of the Roman Land Surveyors*, 135.

19. *ibid.*, 208. The liminality of this craft is already evident in its being used by Aristotle as one of the examples when discussing the existence of ‘intermediaries’; *Metaph.* 997b27.

Rabanus Maurus

Coming back to the church dedication and an early medieval Christian association, an immediate striking visual parallel is found in the lattice-work of Rabanus Maurus’ *Liber sanctae crucis*, where letters, rhythm, Christic motifs and a rigorous grid pattern combine in what must count as one of the summits of alphanumeric art.  

21. Clavel-Lévêque et al., *Corpus Agrimensorum Romanorum IV. 1*, 97.

All the above makes it quite easy, in the context of this work, to see how some aspects of the Roman surveying tradition could have been assimilated into this rite of the early church, in a process comparable to the assimilation of the patterns of Roman law into canon law. In fact, it may have been during the times of Rabanus, by the end of the eighth century, when the *abecedarium* rite was first performed, but regarding its origin, and in spite of any Greek, Etruscan or classical Roman associations, the decisive argument is a linguistic one.

### The Celtic Connections

Going back to the earliest textual occurrence of the *abecedarium* rite, and as pointed out by Andrieu,²³ there are two key terms used in *Ordo XLI* which are of clear Celtic origin: the officiant is said to trace the *abcdurium* (or *abcturium*, instead of the usual...

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abecedarium) with his cambuta (instead of baculus for the bishop’s crozier). A more recent study has confirmed, upon examination of a manuscript dating from the end of the ninth century,²⁴ the similarities and Gallican origin of the rite, and its ‘baptismal’ character, including exorcisms, aspersion, unction, and thus also confirming an ancient interpretation of the rite as being related to the catechetical teaching of the *initia et rudimenta doctrinae sacrae*, the ‘principles and rudiments of sacred doctrine’ symbolised by the letters.²⁵ This is in fact directly related to the text of Heb. 5:12, where the faithful are said to need instruction in τὰ στοιχεῖα τῆς ἀρχῆς τῶν λογίων τοῦ θεοῦ ‘the letter-elements of the principle of the oracles of God.’

**Eriugena**

It is in the light of this specifically Irish connection that the figure of John Scotus Eriugena comes to our attention. Eriugena (c. 815–c. 877) is known as the first since Saint Augustine to introduce the ideas of Neoplatonism from the Greek into the Western European intellectual tradition, where they were to have a strong influence on Christian theology. His *Periphyseon* or *Division of Nature*, a work which ‘synthesizes the philosophical accomplishments of fifteen centuries,’ has been called the final achievement of ancient philosophy.²⁶

In a general way, the logos in the works of Eriugena has been characterised as ‘the unitary conglomerate of the universe in its *causae primordiales,*’²⁷ but even more particularly, his doctrine of the elements in their cosmogonic role has been studied minutely by Frances Yates in the context of another major representative of an alphanumeric cosmology, that of Ramon Llull (c. 1232–c. 1315).

Llull’s diagrams (remarkably similar to some Kabbalistic devices) where the letters of the alphabet symbolise the divine attributes and encompass in their combinations all possible knowledge, appear at first sight like a perfect representation of the combinatorial ‘skill’ (the *ars*) whereby the Artist of the *Sefer Yetsirah* makes the world. However, one searches his works in vain for a cosmological doctrine that corresponds to this visual impression, and the use of the letters seems restricted to that of a conventional code to be deciphered. Given Llull’s background, and especially his acquaintance with Jewish and Muslim doctrines, I find hard to believe that some kind of real alphanumeric cosmology does not underpin his diagrams, but a thorough

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As suggested by Yates, there is a Neoplatonic influence clearly at play under Llull’s ‘natural logic’, based as it is on the elemental structure of the created world. This influence is as it were revealed in the role assigned by Eriugena to what he calls the ‘universal elements,’ *universalia elementa quae Graeci catholica στοιχεῖα vocant.*

These ‘elements’, immediate effects of the primordial causes, are the four elements, though not in any corporeal form or as the four elemental qualities, but existing *per se*, universally diffused in a mysterious and incomprehensible way, and they correspond to the *firmament* of Genesis in that they separate, create a boundary, between the supernal waters (the primordial causes) and the lower waters (elemental qualities).

The universal elements, *καθολικὰ στοιχεῖα*, are a sort of mediator, *medietas quadam*, between the primordial causes and the composite bodies. They come together and accord with one another, *conveniunt et concinunt*, and Eriugena explains how this is so because the meaning of *στοιχείωσις* is *διατύπωσις*, *hoc est, conformatio*—the ‘elementation’ is a setting into forms, a kind of ‘typing’ of reality—in what can be

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28. Notably, Idel and Djebbar have argued respectively for Jewish and Islamic sources of Llull’s combinatorial art, see M. Idel, ‘*Dignitates* and *Kavod*: Two Theological Concepts in Catalan Mysticism,’ *Studia lulliana* 36, no. 92 (1996): 69; and A. Djebbar, ‘Las prácticas combinatorias en el Magreb en la época de Ramon Llull,’ *Quaderns de la Mediterrània*, no. 9 (2008): 322–3. See also D. Urvoy, ‘¿En qué medida se vio influido el pensamiento de Ramon Llull por su relación con el islam?’, *Quaderns de la Mediterrània*, no. 9 (2008): 287–295, who points out significant connections with the *Budd al-ʿārif* (*The Object of Worship of the Gnostic*) of Ibn Sab‘īn.


easily read in a typographic sense.\textsuperscript{31} Not surprisingly, we are finding here again the images of dance and acoustic harmony that we had encountered in the first chapter of this research.\textsuperscript{32} And echoing even more the attributes of the στοιχεῖα discerned by the grammarians, Eriugena explains that these elements must be affirmed to be luminous, or indeed, light itself, in that through their mediation all bodies are made visible.\textsuperscript{33} Of particular interest is his insistence on the reality of this imagery: no allegory is meant in these, but ‘only a direct physical regard’ (\textit{nuda solummodo physica consideratio}).\textsuperscript{34}

To return to the opening lines of this section, it should be noted that in this metaphysical continuum of elements of various degrees, one can discern the profound imprint of a worldview found in other manifestations of the Celtic mentality. It is well known in theological studies that one of the hallmarks of Celtic Christianity is its emphasis on the metaphysical continuity between heaven and earth; what has been called, significantly in our context, the ‘St John tradition.’ The doctrines of Pelagius, like the convoluted patterns of Celtic graphic arts, have long been considered representatives of a theology in which the emphasis is on the immediacy of God in all created life.\textsuperscript{35} Eriugena’s metaphysics, according to which the divine goodness is not only the essence, but also the substance of creation,\textsuperscript{36} fits neatly into this doctrinal line, and it is little wonder that the interplay of the elements in his expositions has been likened to the sinuous patterns of the masterpieces of Celtic illumination.\textsuperscript{37}

\textbf{FROM THE LINDISFARNE GOSPELS, EARLY EIGHTH CENTURY}

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\textsuperscript{31} \textit{Periphyseon}, 3, 706c; page numbers follow the \textit{Patrologia}, the text is Jeaneau’s as in Gorlani’s edition. \\
\textsuperscript{32} See above, p. 29. \\
\textsuperscript{33} \textit{Ibid.} \\
\textsuperscript{34} \textit{Periphyseon}, 3, 707b. \\
\textsuperscript{36} \textit{Periphyseon}, 681D. \\
\textsuperscript{37} Yates, ‘Ramon Lull and John Scotus,’ 10. 
\end{flushleft}
Psellos: Letters and Matter

As I bring to completion the account of Christian alphanumeric literature in the high middle ages, the examination of the most important related work in the Byzantine tradition brings me to an unexpected passage echoing the Celtic doctrine just mentioned, and shedding light on a new aspect of the intermediary elemental realm.

The Byzantine work is the Ἑρμηνεία περὶ τῶν εἴκοσιτεσσάρων στοιχείων, Interpretation of the twenty-four letters, by Michael Psellos (d. 1078).³⁸ In spite of the title, there is not much of interest for us in the treatise itself, since it is devoted to a letter by letter elucidation rather than discussing the nature of the alphabet as a whole,³⁹ but following immediately after this treatise there is the following four-line Fragmentum de materia,

Ἡ ὕλη μήτηρ τῶν εἴδων καὶ τιθηνός λέγεται· καὶ γὰρ καὶ αἱ τῶν ζῴων μητέρες κατὰ τὸν λόγον τὸν τὸ 'τί ἦν εἶναι' σημαίνοντα τοὺς λόγους ἀπαντάς ἐχουσὶ τῆς γενέσεως διὰ τῶν παρὰ τῶν ἀρρένων καταβαλλομένων γονών ἐν τοῖς κατὰ τὰς μήτρας ύγροῖς.

Matter is called the mother and nurse of forms, because just like it, the mothers of living beings too contain all the analogies (λόγους) of generation, according to that analogy which betokens the essential quiddity and by means of the male sperm cast in the humidity of the womb.

I shall try to make this clear by paraphrasing and explicating the condensed meaning:

1–Matter (which is in Greek something similar to timber, and also like the living wood from where the timber is extracted) is like a mother and a nurse, meaning that it not only originates but also nourishes and sustains.

2–Why is this comparison valid? Because there is something in which matter resembles a mother: mothers have in them all the ‘words’ (the term is logos) of generation. But the best translation here may be ‘patterns’—mothers hold in themselves all the patterns of their future progeny, just as matter contains the patterns, words, ratios, analogies of the future beings. Obviously, the matter referred to here is not a primordial chaotic substratum but some sort of in-formed primary constituent.

3–Each being has a quiddity, an essential what-ness which is revealed or signified (σημαίνεται) by a pattern or word. When we say that the mothers, like matter, hold the patterns of every future progeny, it is understood that these patterns refer to every

individual pattern which signifies the essence of a being. Matter is thus conceived as a semantic repository.

Finally, it is made clear that mothers perform their ‘metaphysical’ task of individuation by the ordinary means of animal reproduction between male and female.

It is well known that the Latin word *materia* itself derives from *mater*, mother, as if prefiguring in its derivation the understanding laid bare by Psellos, and there is a wealth of literature, especially in mythical narratives, where the original cosmic substance is conceived as a benign motherly figure; what is of special note here is the fact that this compressed passage appears almost as a coda to the treatise on the twenty-four letters. Indeed, the last lines of the *Interpretation* are about intellectual motherhood: ‘I have engendered many times many other discourses (λόγους), but I never begot one son like this one, for which I endured birth-pains and whom I gave birth to in one single night... And we shall hold onto our own progeny...’ And immediately after that follow the lines on the universal motherhood of matter, where the λόγος plays such a crucial defining role. Our final witness to the doctrinal alphanumeric developments is in fact related to the numerical aspect of the λόγος.

**Aquinas and the Second ‘Signified’ Matter**

The *locus classicus* for the maternal aspect of matter as the receptive pole of creation is *Timaeus* 50d3, προσεικάσαι πρέπει τὸ μὲν δεχόμενον μητρί—’it behoves to compare the receptive to a mother.’ This passage and other related epithets found in *Timaeus* were translated and commented upon by Calcidius, who gives a list of various alternative names for the same reality,

> *quam modo matrem, alias nutriculam, interdum totius generationis gremium, non numquam locum appellat quamque iuniores hylen, nos silvam vocamus*

What he now calls ‘mother’, in other places ‘nurse’, and sometimes the ‘womb of all generation’, or even ‘place’, and what later thinkers call *hyle*, we call ‘wood’.

The bewildering semantic shifts of the terms for matter through the middle ages have been well charted and need no retelling. Charlton gives a pithy account, including

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40. Originally, the trunk of a tree which gives birth to offspring.
41. 36.637–42.
the importance of the role played by Calcidius’ work until the second half of the twelfth century, when the translations of the Aristotelian physical and metaphysical texts started circulating in Europe. ⁴⁴ By examining the text of the Timaeus and its commentaries, Brisson has shown in every detail how the aspects of the primordial substrate include always a tension between the constitutive (mother, nurse, wood) and the spatial (place, receptacle—ἐκμαγεῖον), and he argues for the necessity to preserve this tension and ambiguity within the expression, to try to honestly grasp ‘that something whose existence we must postulate, but whose ontological nature is so difficult to determine.’ ⁴⁵

It is no wonder that Aristotle’s writings are particularly abstruse on this point, and just as he posited two kinds of matter, a sensorial one and an intellectual one (/Grid η νοητή—Metaph. 1036a9)⁴⁶ there were many others who developed alternative nomenclature. Iamblichus, for instance, speaks of three kinds of matter: sensorial, mathematical and intellectual. ⁴⁷ Proclus reaches the summit of elaboration of this doctrine with ten hierarchical levels according to the interplay between the Limited (Form) and the Illimited (Matter). What all doctrines of matter have in common through the centuries is that they are always forced to fill a primordial gap between the intelligible forms and the spatial receptacle, and to do it by positing some sort of intelligible matter in whose image the sensorial world will be modelled. ⁴⁸

In the thirteenth century, when Aquinas was writing his Summa Theologiae (ca. 1265–1274), his preferred solution to the same conundrum was to explain first that materia est duplex, ‘matter is dual’: communis, et signata vel individualis, ‘common’ and ‘delimited/demarcated/designed’ or ‘individual.’ ⁴⁹ Then he speaks also of two kinds of materia: sensibilis aut corporalis and materia intelligibilis, which is said to be ‘substance inasmuch as it is subject to quantity.’ ⁵⁰

So we have four kinds of matter, communis, signata, sensibilis and intelligibilis, which are paired up in an increasingly subtle scheme of common sensible, signate sensible, common intelligible and signate intelligible, ⁵¹ but we want to dispense with the subtleties now, and to focus on the signate intelligible matter.

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⁴⁴. See Encyclopedia of Medieval Philosophy: Philosophy Between 500 and 1500, ed. H. Lagerlund (Springer, 2010), s.v. ‘Form and Matter’.
⁴⁶. Cf. Annas, Metaphysics Mu and Nu, 33, who calls this an ‘oddity in Aristotle’s thought.’
⁴⁸. Ibid., 243.
⁴⁹. The translation variations are meant as references to the Hermetic and Roman surveying texts discussed in previous pages.
⁵⁰. Summa, Iª q. 85 a. 1 ad 2.
This ‘dimensioned’ or ‘designated matter’, called elsewhere *materia sub quantitate determinata*, is the *principium individuationis*, the principle of individuation in which there is a clear analogue of that λόγος ὁ ’τί ἦν εἶναι’ σημαίνων, that ‘ratio signifying the quiddity’ of a future being, which dwells in the motherly womb of universal matter. It is also the intermediate level, the interface which makes possible the total reciprocity of the encounter between intelligible and sensorial matter. One way of realising the various ways in which it has to do with this current enquiry is afforded us by the explanation, from a leading Thomist philosopher, that: ‘intelligibility is the ground of possibility, and possibility is the possibility of being.’ It is easy and seemingly natural to conceive of intelligence, in its relation to existence, as a net cast from above, but perhaps what we encounter in this basic notion of the ‘measure of the land’ is the complementary image from below, the laying of a grid in preparation for the building of existence.

**Dante and Hildegard**

To conclude this chapter, I would like to observe how the imagery explored in all these authors is always not only orbiting, as it were, the central alphanumeric concept of λόγος in most of its aspects, but also in particular, and as we had found in the previous chapter, its intermediary and crucial function in the cosmopoiesis, the making of the universe. This constructive function seems to be strictly liminal in a very practical sense: it is not so much architectural as cadastral, i.e. related to the land surveying needed to lay the foundations of a new building—it is a strictly intermediary stage, like the transference of a design to the terrain, which partakes necessarily of a logical, creative process, and also of practical, material actions (often involving real timber). But rather than continue to establish the many correspondences which the reader may already be discerning between the previous sections, I should like to finish with examples taken from two of the most important Christian literary monuments of this age.

The first is from Dante’s *Commedia*, significantly called ‘the Summa in verse’ in relation to Aquinas, as a literary representative of the same tendency of the age to

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52. *De Principio Individuationis*, Textum Taurini, 1954. This work is now attributed to the fourteenth century Dominican Thomas of Sutton.

53. An important caveat regarding the concept of quantity is given in W. Smith, *The Wisdom of Ancient Cosmology: Contemporary Science in Light of Tradition* (Oakton, VA: Foundation for Traditional Studies, 2004), 28–9, where this doctrine is approached from the point of view of contemporary physics.


56. H. S. Bowden, *Dante* (London: Catholic Truth Society, 1901), 30, reports this saying, perhaps
bring together many tributaries from different traditions into a single coherent and comprehensive whole. Among the verses of its last chant, we have a vision of the world as a book:

\[\text{Nel suo profondo vidi che s’interna, \nlégato con amore in un volume, \nché per l’universo si squaderna: \nsustanze e accidenti e lor costume \nquasi conflati insieme, per tal modo \nche ciò ch’i’ dico è un semplice lume.}\]

In its profundity I saw how is recollected and bound with love into one single volume what is scattered through the universe: substances, accidents, and their dispositions as if conjoined, in such a way that what I can tell is only a faint reflection.

It has to be noted that the chant begins with an invocation to the Virgin Mary, in which she is addressed as Vergine Madre, figlia del tuo figlio,/ umile e alta più che creatura,/ termine fisso d’eterno consiglio, ‘Virgin Mother, daughter of your son,/ more humble and yet higher than any creature,/ fixed limit of the eternal counsel.’ That is, she reunites the polarities in a dumbfounding unity, so much so that perhaps ‘we could say of her, without lying, that she is some sort of form beyond vision or shape, that she is all-receptive, and that she shares in the intellectual in the most perplexing way.’

The second example is from O splendidissima gemma, one of the hymns of Hildegard of Bingen (1098–1179), who furthers the identification between the Virgin and the attributes of the intermediary undefinable matter which encloses all the definitions:

\[\text{Hoc Verbum effabricavit tibi Pater hominem, \nest ob hoc es tu illa lucida materia \nper quam hoc ipsum Verbum exspiravit omnes virtutes, \nut eduxit in prima materia \nomnes creaturas.}\]

The Father crafted for you this Word into a man, and so you are that luminous matter through which this Word breathed forth all virtues, when in the primal matter he brought forth all creatures.


57. Paradiso XXXIII, 85–90; transl. Mandelbaum with a few changes.
58. This is the description of the ‘mother and receptacle of the sensorial’, αἰσθητοῦ μήτηρ καὶ ὑποδοχή, in Timaeus 51a.
The epithet *lucida materia*, adding the aspect of light to the ‘second matter’, is found in another hymn as *aurea materia*, ‘golden matter’. In this little sample of Mariology, outlining Mary’s essential role in the process of creation,⁶⁰ we have the fully Christian expression of a very developed alphanumeric cosmology:⁶¹ it is only the luminous matter, Mary,⁶² as only the alphanumeric series of designating universal elements, which can make the perfection of creation possible.

⁶¹. An interesting comparison between the Jewish doctrine of the *shekhinah* and the Marian attributes is found in *ibid.*, 169.
Chapter 9

Islamic Systematisation and the Sublime
Letters That We Were

The three witnesses in this final chapter retrace the trajectory of our concept along lines which have become familiar—as they reoccur in varying degrees and ways since late antiquity—and with a sophistication and an encyclopedic push which are at once Islamic and also very universal.

This historic trajectory of the *stoicheia* draws a path from the East to the West—like the Phoenician and Ephesian letters came to Greece, and like the Indian numerals came to the Arabs, and then again westward into Europe, or like the religions of Abraham spread from the East. Then there is also the semantic trajectory of the *stoicheia*, from ancient Greek doctrines and techniques—from Greek philosophy, science and magic—to Abrahamic religions in their many salvific dimensions.

In the following pages I shall examine, always from the same alphanumeric vantage point, the works of the *Ikhwān al-Ṣafāʾ* or *Brethren of Purity* (active around the early tenth century), the works on magic and esoteric lore attributed to Aḥmad al-Būnī (d. 1225), and the works of the Andalusian scholar and mystic Muḥyī al-Dīn Ibn ʿArabī (d. 1240). As will be appreciated, this selection retraces once again a path from Basra in the East to the farthest western reaches of the Islamic polity. By way of transition and as a sort of preamble, and given its interest from the point of view of letter cosmology, I shall first introduce a passage from the *Kitāb al-zīna* (*Book of the Ornament*, on the superiority of the Arabic language) of Abū Ḥātim al-Rāzī, an Ismāʿīlī scholar of the early
Abū Ḥātim’s Letter Cosmogony

The following text comes naturally into our timeline not only because of its subject, but because it is introduced as a tradition reported from Jaʿfar al-Ṣadiq, and because it has been related for obvious reasons to the Sefer Yetzira. The word used for letters is the usual hurūf, but it is clear from a later passage that their phonetic meaning is primarily intended.

The first thing imagined, willed and desired by God, Mighty and Majestic, was something imaginal, an object of will, and an object of desire; this imagined, desired and willed by Him was the letter-sounds, which He, Mighty and Majestic, made the root for every thing, the sign for every object of perception and the criterion of every difficulty. All things are known through these letter-sounds [...] and all phaenomena are joined to them. And when He imagined them, He did not make them anything but themselves in their delimitation without existence, since they were something imagined in the imagination. ‘Imagination’ at this stage was the first action of God, Mighty and Majestic, who is the light of heavens and earth, and the letter-sounds are the act of this action. These are the letter-sounds upon which is built all speech: and all manners of speaking and languages come from God, Mighty and Majestic, and from his creating, and they are thirty-three letter-sounds.

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The first thing to note about this text is the liminal status of these primordial letters, which are not yet the Arabic letters but the phonemes of every language: they are

imagined\(^\text{13}\) and they have a ‘limit’ (\textit{tanāhin}) but no existence; this is not unexpected perhaps, since they are precisely a border, an edge (\textit{harf}). \textit{Tanāhā}, as a form of the root \textit{n-h-y}, is said of the water when it reaches a pond and becomes still,\(^\text{4}\) a very apt image for the delimitation of the flow of air divided into phonemes, as in the familiar passage in the \textit{Philebus}.

Let me also note how we had in previous pages found the Arabic hendiadys \textit{ḥurūf wa-uṣūl} and ‘\textit{anāsir wa-uṣūl} used to translate στοιχεῖα, and now here we encounter the metaphysical phonemes being called ‘the \textit{asľ}’, the root-foundation of all things. Lastly, here we seem to have again, though in an indirect way, the relation between the divine light and the metaphysical letters: the mention of God as \textit{nūr al-samawāt wa-al-ard} (Qur’ān, 24:35) occurs in such a way that it is unavoidable to relate it to the making of the letters.

Further down the text, Rāzī explains that twenty-eight of these letters are used by the Arabic language, while the remaining five are used by other languages. And then, still on Ja’far’s authority, he proceeds to explain the ‘three creations’:

\[
\begin{align*}
\text{الخلق الأول النومم} & \text{ لا وزن لله ولا لون ولا حركة}
\text{ ولا يسمع ولا يحس}
\text{ والخلق الثاني الحروف لاوزن لها ولا لون وهي}
\text{ مسموته بالآدان موصوفة بالأنس غير منظور إليها}
\text{ والخلق الثالث كل ما كان بالحروف موصوفا في}
\text{ الأنواع كلها وهو ملمس ذو وزن منظور إليه}
\end{align*}
\]

The first creation is imagination (\textit{tawah-hum}), which has no weight, colour or movement, and is inaudible and imperceptible.
The second creation is the letter-sounds, which have no weight or colour, are heard by the ears and articulated by the tongues, but are not visible.
The third creation is everything that is articulated by the letters in every possible kind, what is tangible and perceptible, having weight and being visible.

It is quite remarkable that in this cosmology, the ‘letters’ are limited to their phonetic reality, ignoring the Qur’ānic imagery of the ink, related, as we have seen, to the concepts of matter and measure. One of the recurring traits of the concept of \textit{stoicheia} is the ambiguity between their phonetic and graphic aspects, manifest from the earliest grammatical evidence in the unstable lexical distinction between στοιχεῖον and γράμμα.


This strictly aural cosmogony will perhaps serve as a guiding thread for future research into the source of this striking report by Rāzī.

A Pure Brotherhood

The Ikhwān al-Ṣafā’ or Brethren of Purity, an enigmatic group of scholars active around Basra in the early tenth century,⁵ produced an encyclopedic collection of 52 treatises or Epistles, the Rasā’il Ikhwān al-Ṣafā’, which have been rightly considered unique in every way, both inside and outside the Muslim world.⁶ Indeed, the tendency to merge into a doctrinal synthesis the accumulated treasury of late Hellenistic and Abrahamic scriptural scholarship comes to the fore in the Rasā’il again and again in many ways, and it is hardly surprising that they have been called ‘the Pythagoreans of Islam’,⁷ or ‘Muslim Neoplatonists’,⁸ and even a ‘Masonic brotherhood of the eleventh century.’⁹ Their work was greatly influential in many direct and indirect, acknowledged and unacknowledged ways over the centuries, on authors of very different disciplines who were all able to draw from the overflowing source of the Ikhwān. The Rasā’il were translated into Persian, and some excerpts of it into Hebrew, Turkish, Hindustani and Latin.¹⁰

The variety and extension of the collection will inevitably force me to be uneven and limited in my treatment of their doctrines, as I shall, more than in other cases, try to restrict myself to the points which are immediately relevant to this research. The

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Rasā’il make for fascinating reading—al-Qifṭī calls them maqālāt mushāwwiqāt ghayr mustaqṣāt, ‘thrilling, unfathomable treatises’—¹¹ and it is easy to be carried away in the train of thought of the Ikhwān from one interesting topic to another. In fact, the Rasā’il delve into all the different aspects of alphanumeric cosmology that we have been studying this far, and what I will try to do is to single out a few more important instances that make a significant addition to this chapter.

How Pythagorean are the Ikhwān?

A full identification of the Ikhwān as Pythagorean can only give rise to complications, given that the definition of what is Pythagorean is itself subject to discussion, as we have seen in Chapter 2, and Marquet’s attempt to make the doctrines of the Epistles fit neatly into a Pythagorean scheme have met with valuable criticism.¹² Nonetheless, from our alphanumeric point of view which leaves aside the more soteriological and ascetic aspects of Pythagoreanism, there would seem to be hardly any question regarding this identification: the primal role of number in cosmology is evident throughout the Epistles, where it is ‘the ultimate foundation of every truth,’¹³ conceived as order and correspondence, and inseparable from the ideas of cosmos and order.¹⁴

This all-important place of number in the cosmology of the Ikhwān is already made clear in an example from the introduction to the whole collection, which illustrates just how daunting their usage of the terminology can be, and which presents one of the handful of occurrences of the word usṭuqus,


إن علم العدد جذر العلوم ونصير الحكمة وبدأ المعرف وأسطح المعاني

The science of number is the root of the sciences, the stock (‘unṣur) of wisdom, the principle (mabda’) of the subtle comprehensions, and the primal element (usṭuqus) of meanings.¹⁵

In Epistle 32, ‘On the Essential Intellectual Principles according to the View of the Pythagoreans’, Pythagoras is introduced again as the great arithmetic authority who affirmed:

14. For these topics above in Chapter 2, see pp. 72 and 70.
The nature of existing beings accords with the nature of number.¹⁶

This characterisation of the relation between beings and number is rather flat when we recall the expressions used by Nicomachus and conveyed by Thābit, speaking of participation, lineage, marriage (μετουσία, translated as Ar. mushāraka), between numbers and reality.¹⁷ It would seem that the Ikhwān follow a sort of ‘soft’ number Pythagoreanism. Number would thus remain an epistemological ‘category’ to be applied to things—quite far from the Timaeus, Nicomachus, Iamblichus and Proclus. The word bi-ḥasabi is key, as it defines a relation which has to do with reckoning, enumeration, mental processes.

But in truly Pythagorean fashion, because it has to do with harmony, with music, and with more than a hint of reticence, it turns out that the deepest understanding of number in the Rasā’il is found in relation to squared numbers—which we know nowadays as ‘magic squares’—and with music.

**Magic Squares in the Epistles**

It is currently accepted that the figurate numbers or ‘harmonic dispositions of numbers’ (awfāq al-a’ḍād), as they came to be called in later Arabic literature,¹⁸ were dubbed ‘magic’ because they were transmitted to Europe in the fourteenth century through astrological and magical texts.¹⁹ This explanation is a little simplistic, given that from the most ancient occurrences in China, the squares were already part of rituals that we would call magic, just as long before getting their European name, they were used to bring about ‘special’ effects. But this may be, once again, a matter of labelling—we needed a word to identify something which could no longer be explained within a new cosmology, one in which quantity and quality where no longer inextricably united. As we shall see immediately, this was far from being the case in the Rasā’il.

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¹⁷. See above, p. 86.

¹⁸. B. Hallum, ‘New Light on Early Arabic Awfāq Literature,’ (forthcoming), (London), 2018: 2. I am most grateful to Bink Hallum for sharing his knowledge on magic squares so generously every week at the Warburg Institute, and for allowing me to cite his forthcoming publication.

One of the main appeals of figurate numbers has always been the mathematical combinatorial one: how to develop methods to construct new arrays of increasing complexity. This partly justifies why, towards the end of the Epistle on Geometry, the Brethren introduce them explaining that, after having shown some of the special properties (khawāṣṣ) of numbers and of geometrical shapes, they will now speak about some of the properties of their conjunctions, for through them ‘are made evident some of their particular properties which are not visible when they are separated.’ Then follow in ascending order the first seven regular squares, called at first simply ashkāl, ‘shapes’, but finally identified to talismans, and then a little more explanation: why do they have such ‘special properties’? It is because ‘there is no entity, either mathematical, natural or divine, which is devoid of an exclusive property. And so their combinations (majmūʿāt) too have special properties’ which do not manifest in isolation. This applies to numbers, shapes, forms, times, places, flavours, colours, utterances, letters, etc., and so, ‘when you join them symmetrically (ʿalā al-nisab al-taʿlīfiyya), then their special properties and their effects become evident.’

After the previous chapters of this enquiry, it will not be difficult to appreciate how this conjunction of shape and number echoes the nature of the alphanumeric elements, which were each of them precisely such a conjunction (with the third acoustic level added to it) and which had their own ‘personality’, their ‘character’ as listed in the many works devoted to restricted letter cosmology. But actually, the Ikhwān do still inch closer to some of our previous findings.

Music: Prosody: Grammar

It is quite significant that the Epistle on Music includes lengthy tracts on prosody and on writing (kitāba), the ‘noblest of arts’. From music the transition is seamless, since music is based, like prosody and metrics, on the contrast between sound and silence, like vowels and consonants, long and short syllables. Regarding writing, the shapes of the letters are explained to derive also from a binary, the straight and curved lines, and so put in relation with the art of geometry (1.219)—the letter-shapes are explicitly here the geometrical aspect of language.
In spite of this common ground between music and writing, music is said not to have the clarity of language, because melodies and rhythms do not have an alphabet (*layسا lahأ hأ rع أl-mع`jأm*), a remark made elsewhere to signal similar shortcomings of other disciplines.

Several pages are devoted to the geometry of calligraphy, culminating with the geometry of the human body, and all this geometry depends on

ما كانت تركيب بيئيه وتأليف أجزائه على النسبة الأفضل

... that the arrangement of the structure and the composition of the parts are based on the noblest proportion.

The building vocabulary, with all the terms referring to structure and composition is essential to the worldview of the *Ikhwân* which is completely demiurgic, in line with the doctrines of the *Timaeus*. I shall leave for later further comments on this.

‘Letters’ in the *Rasâ’il*

Further down, even closer to our subject, the most important identification between letters and numbers occurs in Epistle XXXI *On the Difference between Languages*, where in order to name the newly created beings, Adam is said to have been taught the nine ‘signs’ (*ʿalأmأt*) or ‘letters’ (*ḥأrع أf*) which turn out to be the nine numbers from one to nine, ‘which the people of India use in this form ١٣٤٥٦٧٨٩’.

In an echo of the triple nature of the στοιχεία we have studied before, the letters are mentioned at the beginning of the logical treatise *On the Isagoge*, because they make up utterances and convey logical meaning in three ways: intellectional (*fأkر أyy أ*), by giving form (*muأš أw أw أra*), in their essences; linguistic (*laف أziyy أ*), as utterances; and graphic (*kأhأṭ أyy أ*).

الحروف الخطّيّة إنما وضعت سمات ليستدلّ بها على الحروف اللفظيّة، والحروف اللفظيّة وضعت سمات ليستدلّ بها على الحروف الفكرية، والحروف الفكرية هي الأصل


The graphic ‘letters’ denote by signs the linguistic ‘letters’, the linguistic ‘letters’ denote by signs the intellective ‘letters’, and the intellective letters are the foundation.²⁸

Once again, the letters in their highest level are the root-foundation, the aṣl.

Later, in chapter 7 of the same epistle,²⁹ when this discussion is reprised, the letters are no longer mentioned, as had been promised, but ‘the foundation’ (sc. of intellective letters) is explained, in what seems to me to be the closest to a metaphysics of ‘letters’, saying,

\[
\text{إن الأشياء كلها بأجمعها صور وأعيان غيريّات أفاضها الباري}
\]

All things in their totality are different forms and selves (aʿyān) emanated by the Creator.

Given the context, I think it is clear that by ‘the forms and selves’, or essences, are meant those same that had been called ḥurūf some pages before, and that they are thus said to be emanated by the creator.

Studying in detail the architecture of this emanation, and how it comes about through the setting of metaphysical ‘limits’, and how if forms part of different levels of divine craftsmanship would exceed the limits of this work, but indicating some basics of their cosmogony will doubtlessly be relevant.³⁰

Epistle XV is devoted, among other concepts, to explaining what ‘matter’ (hayūlā) is, or rather what the four different levels of matter are. It is in their third level, ascending, in what they call the hayūlā al-kull, the universal matter, also known as the absolute body (al-jīsm al-mutlaq),³¹ that I seem to find a correspondence to the intermediary level of the ‘universal elements’ or the ‘materia quantitate signata’ of the previous chapter. In Epistle VIII, ‘On the Practical Arts’,³² there is similarly a question of the psychic craftworks (al-maṣnūʿāt al-nafsāniyya), also the third degree on the ascent, which are compared to ‘a system of the centres of the elements’ (niẓām marākiz al-arkān), and also to ‘a system of the forms of the universe in their totality’ (niẓām ṣuwar al-ʿālam bi-al-jumla).

29. X.1.398/Baffioni 75.
31. RIS-Beirut, 6–7.
32. RIS-Beirut, 1.277.
However, because their expositions are not quite free of some contradictions in
details, and because they have a system of ten levels of emanation mingled with the
different kinds of matter, and also with the different types of craftworks (maṣnūʿāt), what I have
is the strong impression of a continuum in which the cutting points do not quite match the
notches of other comparable ‘scales’. A close comparison and examination is beyond
my competence, but several aspects of their cosmological hierarchy are clearly related
to the systems of Plotinus and Proclus, reminding us of Marquet calling their doctrines
a ‘syncretism of syncretisms’. ³⁴

**Risāla al-Jāmiʿa**

To complete what is necessarily a sketchy examination of the Ikhwān’s corpus, I would
only like to register two passages from the ‘crown’ of the Epistles, the *Risāla al-Jāmiʿa* or
*Comprehensive Epistle*, ³⁵ which in general follows with few divergences the subjects
of all the other epistles, but gives more prominence to the doctrine of the divine
language. ³⁶

In the section *Fi al-ibdāʿ al-awwal wa-al-qawl bi-anna ʿilm al-ʿadad fayḍ al-ʿaql al-ḥaṣâl al-nafs*, ‘On the first creation and the assertion that the knowledge of number is an
effusion of the intellect into the soul’, ³⁷ practically nothing is said about number, but
we find instead a valuable reference to the divine script, drawing on the Qur’ānic images
of the Tablet and the grid lines. ³⁸

> The script on the Magnificent Tablet is the lines of the Will and the letters of the Volition.

Later, in the section ‘That numbers precede all sciences in the same way as the
intellect precedes all things,’ we find the following lines which are close to what is
found in the *Rasāʾil*:

> All other knowledges exist within the knowledge
> of number, as its form corresponds to the form
> of the existants. So the perfection of both states
belongs to it, since it is the form of the elements in potency and it is the form of the compounds in act.

As for its being the form of the elements in potency: speech is [likewise] in words composed of letters, and the setting of every rank of number is to do with its location in the soul by means of speech, with no need of a sensorial space or tactile cognition in order to be conceived in the soul.

Now, as regards its being the form of the perceptible compounds which occupy places and arise in time—the ones denoted by the names one, two, three, four, five, six, seven, eight, nine, ten and so on—it [number] is in potency a fashioner (muṣawwir) in the soul of the one who counts, and in actuality it is the form of what is counted.\(^{39}\)

In this fragment we have a complete expression of most aspects of the Ikhwān’s metaphysics of number, accompanied by a curious mention of the letters.

The correspondence in question, muṭābaqa,\(^ {40}\) a conformation or very close concordance, is quite different from the bi-ḥasabi found earlier, and more like the relation between the numbers inside a magic square (wafq).

The ‘two states’ refer in this context to those in the section title, the cognitive of ‘ulūm and the ontological of ashyā’. The ‘simples’ are another name for the four elements (arkān).\(^ {41}\) Regarding the two immediate assertions, I am reading the ‘elements in potency’ as an intermediary level of the elements, as yet immaterial; it would be those which not only correspond to number, but number is their form. On the lower actual level, number is the form of the composites too.\(^ {42}\)

The second paragraph expands on the form of number being the elements potentially. It takes a turn to language—why?—most likely because language and letters belong par excellence to such level. I read retaining ‘adad as the masculine singular reference: ‘the disposition (wad)’ of any order of number (minhu) is to do with its situating it in the

\(^{39}\) Ikhwān al-Ṣafā’, RJ, 29.


\(^{41}\) RIS-Beirut, XXVI.2.473.

\(^{42}\) A summary of this topic in context can be found in the section ‘Die Mittelstufen des All’, Dieterici, Die Philosophie der Araber, 1.177.
soul, abstractly.’

The third paragraph expands on the lower actuality of the form of numbers, and introduces in it a subdivision: when you count, number (here almost personified), as the form of the integers, is in your soul a producer of forms—it *informs* the soul by means of the integers, and as such it is the psychic *formator*. On the other hand, number is, also by means of the integers, the actual form of what is counted; and as such it is the ontological *formator*.

### A ‘Sufi’ Interim

One of the important developments in the Islamic world that go in parallel with the gradual advent of the alphanumerical scission is the consolidation of Sufism (*taṣawwuf*), from the prevailing asceticism of the first centuries, to identifiable groups of masters and disciples, then to a distinct body of literature and associated practices, then, towards the twelfth century, into the arising of the first orders or brotherhoods. 

It is remarkable that although both al-Būnī and Ibn ‘Arabī belong by their spiritual lineage to lines of Sufi transmission, and although they are immediately recognised as *mutaṣawwifa* by Arabic speakers, their writings are not necessarily, or not unanimously, considered typical representatives of Sufī literature; rather, they seem to be each a fountainhead from which later generations of Sufis, philosophers and magicians and others, have drawn and continue to draw.

Now, the lineage of alphanumerical cosmology, as we have seen, does not only run through mystical lineages, but it is also evident in works of grammar and metaphysics, and found often too in theological works that reject any sort of *ḥurūfī* mysticism. Ibn Sinā (d. 1037), for instance, aside from his metaphysical writings in Aristotelian style, wrote a brief treatise, the *Risāla al-nayruziyya*, with a cosmogony based on the letters of the alphabet.

Even when there is no question of letters or numbers, the idea of a universal order (*niẓam*), harmonisation (*wafq*), and of a reckoning (*ḥisāb*) of God are fundamental in most works of *‘aqīda* or articles of faith. The liminal nature of language, necessitated by the status of the Qur’ān and ensuing reflections, make it impossible to always turn a blind eye to the question of the letters, their ontological status, and their special

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properties.

These, and countless such examples, are all testimonies to the underlying coherence and the ubiquity of a cosmology based on the following points:⁴⁵

1• All is number in the universe, from the primordial creative act to the details of earthly phenomena, and the nature of numbers is in full actuality in the divine Word, where number and meaning coalesce as they give form and structure to the world.

2• Hence that the structure of the universe is not only comparable to language: all of it is language indeed. And so alchemy and magic (like prayer and the divinatory arts) are accordingly sub-disciplines of a cosmic linguistics, like cosmic syntax, spelling or morphology.

3• Human language—in its logic, utterance and writing—is the real concretion of universal language; not only is it analogous to it, but it participates in it and in its realisation. When man casts a magic spell or utters a prayer, his speech gives him (literally) a say in the cosmic speech that constitutes the world.

♦

Down the centuries, these principles are found with varying prominence in the works of authors considered more or less loosely to be philosophers or mystics or esoterists, and all generally related in one way or another to Sufi lineages.⁴⁶ Why? In a process comparable to the Christianization of philosophy in Europe, where monks and anchorites became the de facto torch bearers of ancient philosophy,⁴⁷ a gradually institutionalised Sufism tended to include in its fold the likes of Sahl al-Tustari (d. 896), Ibn Masarra (d. 931), al-Hakim al-Tirmidhi (d. ca. 936), Abû ‘Abd al-Raḥmān al-Sulamī (d. 1021), and Ibn Barrajān (d. 1141),⁴⁸ who were all to a certain extent speculative philosophers, and who in their works dealt with alphanumeric speculation.⁴⁹ Were they Platonising emanationists or straight Ash`arite creationists? From the point of view of the metaphysical στοιχεῖα, which synthesize letter, number, phoneme, physical element and zodiac sign, it really is not possible to draw a line between a Platonising doctrine of astral agency and one of divine cosmogonic effusion. We can perhaps take a hint from

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⁴⁵. With minor adaptations to the present context, I paraphrase Lory, ‘La magie des lettres,’ 89.
⁴⁷. Cf. P. Hadot, Philosophy as a Way of Life: Spiritual Exercises from Socrates to Foucault, trans. M. Chase (Oxford: Blackwell, 1995), 269–70: ‘If to do philosophy was to live in conformity with the law of reason... the Christian was a philosopher, since he lived in conformity with the law of the Logos—divine reason.’
al-Ghazâlî, who provides an elegant, if inconclusive, way out: ‘The truth lies between the masculinity of transcendence (fuḥūla al-tanzîh) and the femininity of similarity (unūtha al-tashbîh).’

Before moving on to my two last authors, who are both heirs to this complex tradition, and through whose works the same cosmology of the divine word and letters manifests in very different ways, I would concur with Pilar Garrido in that most of our contemporary discussions about whether a given author is ‘Sufi’ or ‘philosopher’, are prolongations of the real vexing question of the definition of philosophy, or for that matter, of a monolithic definition of Sufism. Even the paradigmatic champion of ‘orthodox’ taṣawwuf, Abū Ḥāmid al-Ghazâlî (d. 1111), has in his works some passages where a very nuanced doctrine of divine language and of divine causation makes it hard to draw a clear dividing line from late Hellenistic cosmogonies. In fact, the metaphysical and theological impasse has to do, as mentioned above, with language, ergo, with the ‘letters’: first, the names and the attributes of God, and second, the uncreatedness of the Qur’an.

Of the three major Sufi summae of the thirteenth century, namely, Rūmî’s Mathnawî, al-Bûnî’s corpus on magic and esoterica, and Ibn ‘Arabî’s Futūḥât, the last two are very explicitly based on and pervaded by those theologically risky topics, the Names and the Divine Word, and this is why I shall conclude this chapter with them.

Al-Bûnî and the Sun of Divine Sciences

Aḥmad ibn ‘Alî al-Bûnî (d. 1225) is the persona of an unknown compiler or a group of authors who produced the greatest and most influential Arabic compilation of magical texts, what we now call the Corpus Bunianum, the work of ‘several generations of practising magicians’. The most famous work of the Corpus is the book titled Shams al-maʿârif, The Sun of Divine Sciences, a ‘true encyclopedia of Islamic, or Islamicised,
As is common in classical Islamic scholarship, and notably as we recently encountered with the 
Sefer Yetzirah, the Shams al-maʿārif is extant in three versions of different lengths, without there
being conclusive evidence in favour of the earlier origin of any of the three. The long version, Shams al-maʿārif ‘al-kubrā’ is by far the most popular version, the one usually published, and also the one which contains more diagrams and illustrations of later provenance. I shall be using Coullaut’s edited version of the first chapter, and a contemporary printed edition for the rest of the book.

The Letter-Elements in al-Būnī

The Shams al-maʿārif portends to share knowledge on the disposition of the divine Names, on the qualities and secrets of the letter-numbers (ḥurūf), and on invocations and supplications; in practice, it includes information on astrology, talismanic magic, alchemy and divination, but underlying all these, or like a refrain running through the whole work, is the concern with the ‘supernatural force contained in the letters and the names.’ It has been considered a perfect example of ‘religious magic’, being all mostly based on an esoteric interpretation of the Qur’ān, hence that it has also been called ‘Qur’ānic theurgy’.

The First Paragraph

From the beginning of the first section, the Shams is clear about the ‘architectural’ function of the letters:

The Basics of Letter Cosmology

أَتَكُلَمُ أُولًا عَلَى الْحَرُوفِ الْمَعِجمَةِ إِذْ هِيَ أَصُولُ الْكَلَامِ وَأَسَاسُهُ وَبَيْنَ يَرْفَعُ يَدَاهُ

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57. Witkam, ‘Gazing at the Sun,’ 185. Regarding the alternative title Shams al-maʿārif wa-latāʿ if al-ʿawārif (The Sun of Divine Sciences and the Subtleties of Those Who Know) as that of a different work, see Saif, ‘From Ġāyat al-ḥakīm,’ 337, based on Gardiner, ‘Forbidden Knowledge?’
58. See Witkam, ‘Gazing at the Sun,’ 186.
59. The shorter version, al-ṣugrā, has been edited with a comprehensive treatment of the manuscript tradition in the four-volume thesis by Coulon, ‘La magie islamique’; see in particular 2.I–III.
61. ibid.; see xxxff. regarding the manuscript tradition.
63. Lory, ‘La magie des lettres,’ 89.
I shall speak first of the letters of the alphabet, since they are the roots and the foundation of speech, and upon them is raised its structure.  

The terms involved, *aṣl*, *asās*, *rafʿ*, *bināʾ*, belong to the imagery of construction, and three of them are also well-known grammatical terms. A detailed reading of the *Shams* in the light of grammatical terminology remains a desideratum, and may be able to give a more complete understanding of the architectural symbolism. It is remarkable, though surely not surprising, how the three parts of speech in Arabic grammar, *ism*, noun, *fiʿl*, verb, and *harf*, ‘particle’, are so crucial in the cosmology of Qur’ānic theurgy. The following cosmogonic fragment illustrates another linguistic analogy:

وأن العالم العلوي يمدّ العالم السفلي فعالم العرش يمدّ عالم الكرسي وعالم الكرسي يمدّ فلك زحل...

The superior world prolongs itself into the lower world: the world of the throne prolongs itself into the world of the pedestal, and the world of the pedestal prolongs itself into the sphere of Saturn...

The descending generative relation between the worlds, or metaphysical stages of manifestation, is one of prolongation (*madd*) in all the senses associated above with the image of the divine ink, the concept of matter (*mādda*), and the syllabic lengthening (*madd*) as studied in prosody. Quite in line with the Abrahamic doctrines of the divine creative imperative (*amr*), the coming to be of every new level of manifestation occurs in the manner of the prolongation of the syllables in Qur’ānic recitation, and the matter of every new world is a phonetic matter.

**Letter-Number Relation**

Also in the first page, it is made clear that ‘numbers have secrets, like letters have effects,’ and soon thereafter an example involving astrology gives a glimpse into the arithmetical workings.

فلرحل في العلومات حرف الجيم والأعداد الواقعة عليها ثلاثة على الجملة وأما على التفصيل فثلاثة وخمسون هكذا الميم بأربعين والجيم بعشرة والجيم بثلاثة وهو أيضاً بثلاثة أحرف ولد من السلفيات حرف الصاد وهو في العدد تسعةون وله المثلث

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66. Coullaut, 'El Kitāb Šams al-Maʿārif,' 1.9; Coulon, 'La magie islamique,' 2.9.
67. Coullaut, 'El Kitāb Šams al-Maʿārif,' 1.9; Coulon, 'La magie islamique,' 2.9.
68. See p. 168. For this translation of *yamuddu*, see *Lisān*, 4157a; *Lane*, *LL*, I.22696; the sense is the same as in Qur’an 31:27, *al-baḥru yamuddu*, ‘the sea is ink/overflows’ with abundance. Cf. also Lory, 'La magie des lettres,' 104, n. 34.
In the upper realms, Saturn has the letter jīm, and the numbers that correspond to it are three in all: when analysed and added, they total fifty-three in the following way, the mīm is forty, the yā’ is ten, and the jīm is three; it also consists of three letters (ahruf); in the lower realms the letter šād belongs to it, which is, in number, ninety; and the order-3 square belongs to it.  

The detail of the numerical correspondence escapes me, but it is clear that every number relation is established in various complementing ways, mostly based on isopsephy, but certainly more complex than a mere substitution of abjad values. Further down, more is said about the status of number and its relation to letters:

Numbers have a subtle spiritual power. The numbers are among the secrets of utterances, like the letters are among the secrets of actions. In the human world, numbers have secrets and benefits which the Creator—majestic is His might—has ordered as He ordered secrets in the letters for use as in supplications and charms and others... Know that the letters are not restricted by certain times, but rather they work according to each property for whoever wills, and the numbers work according to the natures.

The import of these passages is directly at the source of a more forceful expression found in the Dā’irat al-ahruf al-abjadiyya (The Alphanumeric Circle), an undated treatise within the Būnī tradition, notably attributed to Hermes:

If you want to know the power of every letter, look at what number it has: this is the degree that corresponds for the letters, and this is its power among the spiritual beings.

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70. Cf. also translation and commentary in ibid., 59–60.
71. Edited text in Bonmariage and Moureau, Le Cercle des lettres, see 104.
Joining the Letters

Finally, a later passage speaks of the operation required to reveal the ‘contents’ of the letters:

واعلم أن لكل حرف عوالم لا يطلع عليها إلا الذي حظى من الله تعالى وإذا كشف
لك عن عوالم هذه الحروف فإنك متي جمعت الحروف وأضفت لها الأس تمتلك لك
ملكا روحانيا مقابلك قضى حاجتك

Know that every letter has sciences to which no one ascends unless through the graces of God Most High, when He reveals the sciences of these letters. Indeed, once you have comprehended (or ‘combined’) the letters and joined them to the foundation (al-uss), they will seem to you like a spiritual possession you have received and which fulfills your needs.⁷²

This revealing ‘combination’ echoes the ones mentioned above (p. 228) when discussing the figurate numbers or ‘magic’ squares in the geometrical exposition of the Ḥkwān.

‘Magic’ Squares in the Light of Alphanumeric Cosmology

It is often claimed that the earliest Arabic work devoted to the awfāq was written by Thābit ibn Qurra,⁷³ and one of the oldest squares is found precisely in a commentary to Nicomachus’ Introduction.⁷⁴ Another early treatment of magic squares is due to Ibn Ezra, who introduced the Indian numerals to Hebrew script. In the Greek tradition, the association is between grammar and the squares, through the opuscule by the grammarian Manuel Moschopoulos (fl. end of thirteenth century). Interestingly, his Libellus de inveniendis quadratis numeris is part of a codex⁷⁵ including works on metrics, land division (mensuratio, γεωδαισία), on astrolabes, and an Ars calculatoria secundum Indos.

I draw attention to the subjects of the codex because they illustrate in their variety the very conjunction of many strands of this research that the ‘magic’ squares encapsulate: in them the graphic arrangement of a stoichedon grid, the same pattern of the Roman centuriatio, is allied to a sophisticated arithmetic calculation, and all this conjunction is associated to heavenly bodies and their corresponding zodiacal signs (στοιχεῖα)—and even to the alphabetic aspects through the alphanumeric notation.

⁷². al-Būnī, Shams al-maʿārif, 380.
⁷³. Ibn al-Qifti (d. 646/1248) lists an Epistle on Harmonious Numbers (Risāla fi al-ʿadad al-wafq) among the works attributed to Thābit; Hallum, ‘New Light,’ 46.
It is therefore hardly surprising that the construction of magic squares has been called the ‘true purpose’ for al-Būnī’s cosmological expositions, and it is quite befitting that the construction of the *awfāq* is called the ‘building of microcosms.’ In fact, an association between a Socratic/Platonic ancient wisdom and the science of the squared numbers is explicit in al-Būnī, particularly in his *al-Uṣūl wa-al-ḍawābiṭ*, a title which from a grammatical angle could be translated as ‘Morphological Patterns and Vocalisations.’

**Ibn ʿArabī**

Muḥyī al-Dīn Ibn ʿArabī is not only referred to as ‘The Greatest Master’ within the Sufi tradition, but more particularly he has been credited with ‘the most elaborate system of thought which brings God and man together in the context of the creative power inherent in language,’ or, drawing closer to us, as ‘the Muslim thinker who has dealt more thoroughly with the doctrine of the Logos.’ More specifically, the importance of letter speculation in his works has already been the subject of dedicated and thorough works which I can only gratefully cite in the following paragraphs.

76. See Martin, ‘Theurgy in the Medieval Islamic World,’ 64–6.
Ibn ‘Arabi himself explains that he treated the subject of letters in three works.\textsuperscript{80} Though this count seems to have remained something of an incomplete project, or in any case not quite in agreement with his extant works,\textsuperscript{81} it is noteworthy that one of these works, the only one mentioned by title, is called Kitāb al-mabādi’, the Book of Principles, the same title given by Sa’adyā Gaon to his Arabic translation of Sefer Yetsirah centuries earlier.

The most important work mentioned, partly because of its solid textual tradition and also because it deals with letters in all their dimensions—and not just with a restricted set—is chapter two of al-Futūḥāt al-makkiyya, entitled ‘On knowledge of the hierarchical degrees of the consonants and vowels in the universe and their counterparts among the Divine Names.’ Aside from it, and from many other scattered passages regarding the ‘letters’, there is also notably chapter 198 of the Futūḥāt, ‘On the Breath of the All-Merciful (nafas al-raḥmān),’ where a ‘most famous cosmological scheme’ is built on the divine breathing of twenty-eight primordial letters.\textsuperscript{82}

Ibn ‘Arabi has been recognised as a synthesizer of many of the aspects of the science of letters as they are found in earlier authors,\textsuperscript{83} combining them into a mystical scheme inextricably integrated, very much ‘to the letter,’ with the Qur’ānic revelation. Particularly relevant to this research is the influence of the Brethren of Purity on the importance of number in his cosmogony,\textsuperscript{84} though I shall not go into details of this.

Ibn ‘Arabi appears in some of the lineages of al-Būnī as a transmitter of the science of ‘magic’ squares. These lineages are understood to be more symbolic than historical,\textsuperscript{85} and in this particular case, given that the applications and any comparable detailed treatment about the squares are absent from the Akbarian corpus, they are rather indicative of the shared underlying cosmology. I would also relate this understanding of a shared basic view to the fact that Ibn ‘Arabi was sometimes called ‘Ibn Aflaṭūn’, the ‘Platonist’.\textsuperscript{86}

\textsuperscript{80} Ibn ‘Arabi, Kitāb al-mīm..., 40.
\textsuperscript{81} Addas and Chodkiewicz, ‘On Two Books,’ 106–12.
\textsuperscript{83} E.g. his indebtedness to Tustari (also cited in al-Būnī’s works) to Ibn Masarra, Ibn Barrajān and other Andalusi authors; see Y. A. Casewit, ‘The Forgotten Mystic: Ibn Barrajān (d. 536/1141) and the Andalusian \textit{Muṭṭabīrūn}’ (PhD diss., Yale University, 2014), 2, 44, 230; see also Gril, ‘The Science of Letters,’ 140.
\textsuperscript{84} G. De Callataý, ‘From Ibn Masarra to Ibn ‘Arabi: references, shibboleths and other subtle allusions to the \textit{Rasā’il Ikhwān al-Ṣafā’} in the literature of al-Andalus,’ \textit{Studi Magrebini} (Napoli), 2014–2015: 258–61.
\textsuperscript{85} Lory, ‘La magie des lettres,’ 98.
\textsuperscript{86} Mayer, ‘Theology and Sufism,’ 276.
The Place of the Letters

The elaborate and subtle understanding of the intermediary realm of the ‘letters’ in Ibn ʿArabī’s letter cosmology has been considered one of his most important contributions to the history of world philosophy, and it is directly related to the science of letters inasmuch as it represents ‘the difficult transition of the inexpressible into that which can be expressed.’ Ibn ʿArabī uses the Qur’ānic term barzakh, the impassable ‘isthmus between two seas,’ to designate a reality that simultaneously divides and unites two poles, like the ‘line’ that separates sunlight and shade. As Chittick explains, ‘he uses the term Supreme Barzakh (al-barzakh al-aʿlā) as a synonym for nondelimited Imagination (al-khayāl al-muṭlaq—“absolute imagination”).’ It is the cosmos itself and in a way the human faculty as well, ‘the realm of possible things, which in themselves are neither necessary nor impossible, neither infinite nor finite.’ And at the same time, ‘it is the Breath of the All-Merciful, which is neither nondelimited Being nor articulated words.’

Ibn ʿArabī’s doctrine is remarkable in part for bringing out all the implications of this intermediary realm, and for expressing with Qur’ānic imagery how it is at once invisible, spiritual, and intelligible, and also visible, corporeal, and perceptible. ‘Since the Guarded Tablet or Universal Soul is a spiritual being, born directly from the First Intellect, it is light. But it represents a movement in the direction of Nature, so it embraces the properties of darkness as well. Like any barzakh, it brings together the properties of the two sides.’ But as the cosmology goes into detail, complications arise: Ibn ʿArabī identifies the act of Breathing with that of Imagining, and the world of Absolute Imagination with the Primordial Breath, and also with the Primordial Cloud (ʿamā’). I shall not go into further details of the various levels and correspondences, but instead mention some notable aspects.

One of the distinguishing traits of this iteration of the doctrine of the intermediary realm, is the idea of the divine love: ‘He desired to make Himself known, so that they might know Him, and so the Cloud comes to be; it is called the Real Through Whom Creation Takes Place. The Cloud is the substance of the universe (jawhar al-ʿālam), so it receives all the forms, spirits, and natures of the universe; it is a boundless receptacle.

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This is the origin of His love for us. And in this it will be noted how once again, like at the end of the previous chapter, we are suddenly involved in a Christic-related imagery, and we may remember Dante’s universal book ‘legato con amore.’ The role of the letters of the logos in the cosmology of Ibn ‘Arabi is in fact remarkably īsawī, that is, related to Jesus as an Islamic prophet, for ‘the knowledge of Jesus is the knowledge of the letters’ (inna al-īlm al-īsawī huwa ʿilm al-ḥurūf). Regarding the cosmic architecture based on the twenty-eight primordial letters, and thinking of this Christic connection, the tradition of the fourteen stations of the via crucis is an example that stands out as a promising avenue of further research.

All this is naturally inseparable from the divine creative imperative, also taking into account, as with the case of Jesus, the more merciful aspects of the divine: ‘Since God is … the cause of the existence of everything in the world … everything tends towards Love (raḥma), because He created them and brought them into manifestation within the Cloud (ʿamā) which is the Breath of the All-Loving (nafas al-raḥmān). They are like the letters in the breath of a speaker in their points of articulation (makhraj)... it is a world ever uttered anew (ʿālam muḥdath)—don’t you see He is called the Arranger (al-Mudabbir), the Differentiator (al-Mufaṣṣil)?’

The reference to the phonetic point of articulation brings us back to the linguistic aspect, and indeed, hand in hand with the letter speculation. As could be expected, the writings of Ibn ‘Arabi have a persistent rhythm of allusions to, or rather intimations of, a lughawī dimension, a wealth of linguistic insights in a broad traditional sense. Not the least of the consequences of this tight interplay between the linguistic and the metaphysical, especially in view of the cosmogonic passage just cited, is the understanding that we, on our puny human level, ‘articulate words in our breath just as God articulates words in His All-Merciful Breath.’

Letters and Numbers

Regarding the intimate relation between number and letter, aside from the isopsephic explanations that abound, and aside from the numerical structure evinced by the cosmology and in which an air of familiarity with the Ikhwànian cosmology is clear, there are specific mentions in the Futūḥāt of a common science of the ‘properties of numbers and letters’ (ʿilm khawāṣṣ al-aʿdād wa-al-ḥurūf), or simply ‘of numbers and

94. Ibid., I.168.5; see also Addas and Chodkiewicz, ‘On Two Books,’ 110.
letters,’ as a ‘science of the saints’ and as a prerogative of some of the stations (manāzil) of the travelling initiate.97

In chapter thirteen of the Book of the Mīm, Wāw and Nūn we also have a fine example of the complete integration of the alphabetic symbolism with the arithmetic operations:

\[ \text{If you multiply } \text{ب}[2] \text{ times } \text{ج}[3], \text{ the result is } \text{و}[6], \text{ which shares also in the power of its two parents.} \]

And this is naturally followed by the explanation that the wāw can produce the effect (yaf'alu al-fiʿl) of six, and it also has the power of two and three.

The Three Modes

We find also in Ibn ʿArabī an example of the awareness of the three modes of the ‘letter-number’:

\[ \text{Fiḍa'ā ṣābīt } \text{ب} \text{ fi 'ح} \text{ ج } \text{فإذا ضربت } \text{ب}[2] \text{ ج}[3], \text{ the result is } \text{و}[6], \text{ which shares also in the power of its two parents.} \]

Know that letters have properties, and that they are of three types: written (raqmiyya) letters, pronounced (lafẓiyya), and evoked (mustaḥḍara); and I mean by ‘evoked’ the letters which a man evokes and makes present in his fancy and imagination, and gives form to them.98

In this triple classification we have again with little variation the threefold character of the alphabetic elements: the graphic aspect, the phonetic aspect, and the third mental aspect, which may correspond to the arithmetic, diagrammatic aspect we have found elsewhere and which is related to creativity, as in ‘design’, involving the composition of new images by the form-giving, or ‘in-formative’ faculty (al-quwwa al-muṣawwira).100

The Living Letters

There is an aspect of Ibn ʿArabi’s alphanumeric science that lies outside the boundaries of my research, but which it is nonetheless fitting to mention, not least because it belongs to a long doctrinal thread with parallels in other traditions. I refer to the relation

97. E.g. chapters 354 and 357, Ibn ʿArabī, Futūḥāt, III.246.27 and 261.34.
98. Ibn ʿArabī, Kitāb al-mīm... 62.
100. Cf. Akkach, Cosmology and Architecture, 40–42.
between the divine ‘letters’ of the macrocosmic universe and their intimate relation with the microcosmic universe represented by the exemplars of human perfection.¹⁰¹ When it is said that ‘the science of letters is a science of the saints,’ it does not only mean that the saints penetrate its mysteries intellectually, but also that they embody the arcana of the letters. It is in them, par excellence, that the ontological-epistemological duality of the letters is fully realised, for ‘language and wilāya are intrinsically bound up.’¹⁰²

Within Islamic prophetology this view of the divine letters belongs primarily in the Muḥammadan line, where it is related fundamentally to the exalted inner nature of the Prophet (nūr Muḥammad, ‘the light of Muḥammad’), and thereafter to the Shiʿī lineage of the Imams. As could be expected, it had a fruitful history in Ismāʿīlī cosmology. Secondarily, and as elaborated in great detail by Ibn ʿArabī, this view relates to the spiritual heritage of the Prophet, hence to all his ‘friends’ (awliyā’),¹⁰³ and it has to do with ‘how inextricably linked the science of letters and spiritual realization are.’¹⁰⁴

Now, instead of devoting more lines to this somewhat peripheral topic, I shall only illustrate it with two brief poems chosen to represent two major phases. The first is from one of the many poems attributed to Imām ʿAlī:

ولتحسب أنك جرم صغير
وفيك انطوي العالم الأكبر
وأت الكتب المبين النّدي
بأحرفه يظهر المُضمر

Although you think of yourself as a tiny speck,
Within you the great universe is contained;
You are yourself the book that makes things clear
Whose letters reveal what is concealed.¹⁰⁵

And the following lines are from Ibn ʿArabī’s poetry collection, Tarjumān al-ashwāq:

کتّا حروفًا عاليات لم نقل
متعلقات في ذرى أعلى القلل

103. See Ebstein, Mysticism and Philosophy, 123ff., 143, 146–50;
We were letters, exalted! not yet uttered,  
Held aloft in the keep of the Highest of Summits,  
I Therein am Thou, and we are Thou,  
And Thou art He, and All is in He is He—  
Ask of any that so far hath reached.¹⁰⁶

Conclusion to Part III

After having had a glimpse at the beginnings of systematisation of the ‘science of letters and numbers’ in the three Abrahamic traditions, it is important to emphasise how influential all these representatives would be, not only within each tradition, but also in countless exchanges, cross-pollinating each other’s tradition in theology, philosophy and occult sciences.

The Sefer Yetzirah is widely considered, with the Sefer ha-Bahir (to a lesser extent), the main source of Kabbalistic speculation, or rather, put simply, the precursor and main source material of the Kabbalah as it unfolded through the centuries. It is no exaggeration to say that the defining traits of Kabbalistic doctrines can all be said to pass through the Sefer Yetzirah. The single clearest and sufficient example is that this is the text which put into circulation the term sefirah with a cosmological meaning.

Eriugena and Aquinas represent each too a historical watershed, a repository and a perennial reference for the Christian tradition in their more contemplative and theological aspects. Something similar happens with the role played by al-Būnī and Ibn ʿArabī in the Islamic tradition, where they have been for centuries the fountainheads of theurgic lore and philosophical Sufism respectively. A major related development in the Islamic world would be the emergence of an openly Ḥurūfī or ‘Letterist’ movement led by Faḍl Allāh Astarābādī (d. 1394), who with his Jāvidān-nāma, the Book of Eternity, started a messianic movement of lasting influence. His work is not only related to the teachings of the authors mentioned above, but it cites St John’s Gospel and other Christian writings. Moreover, the Jāvidān-nāma’s cosmology is based on a set of 28 or 32 ‘most basic constituent units of the metaphysical language.’¹⁰⁷

¹⁰⁷. See Mir-Kasimov, Words of Power, 50–51, 163.
Conclusion

After having walked through so many time doors and after the comparative work that precludes sustained concentration on one single point, there is an inevitable feeling of leaving loose ends. In order to address this, I shall now look at the work done from two perspectives, and in so doing I will be making explicit several conjectures implicit in my earlier deliberations. One perspective is conceptual or philosophical, partly recapitulating some of the main themes and partly commenting on some open avenues of research and further comparative study, also with a view to applications in other scholarly fields. Another perspective, historical, to try to contemplate and make sense of the whole narrative from a broader historical point of view.

Conceptual Conclusion: Echoes and Ramifications

Art, Artistry and the Arts

This work is a reflection about art insofar as it never strays from the demiurgic vein shared by the Timaeus and the Sefer Yetsirah, and this with attention to the two inseparable aspects of the word κόσμος—beauty and order. I have discussed the cosmogony related to them, but I find of great interest too the implications regarding the creative process in general.

Since the Deus faber of my account is a geometer and since his creation is based on a stoichedon grid pattern, because 'the world is the field' of the land-surveying Creator,¹ how alphanumeric is essentially, or at least should be de jure, human creativity? If art is based on μίμησις in the sense of an imitative participation, and if in the words of Lamennais,² 'l’art est pour l’homme ce qu’est en Dieu la puissance créatrice,' just how mathematical or geometrical must human art be to emulate its divine model? And if the demiurge, akin, like Apollo, to a boundary-setting Hermes, is a Magician in his ‘spelling’ and combining in acrostics and pangrams the letters of His word and His

world, just how magical is any human creativity called to be? And if creation follows the logic of a grammar, how logical and grammatical should every human design be?

In relation to the magical view of creation, it must also be remembered that the divine creation effected in the alphanumeric elements, or through them, seems to be an immaterial creation, or only material if we understand that it is not quite perceptible matter that is involved, but an intermediate realm, as is the phonetic reality of language when compared to the materiality of writing. To what extent does any human art also belong to an intermediary realm?

**Physics and Modern Physics**

This work is about physics. Since it is about the elements, it is about the material world, about matter and about atoms, but we saw early on that the στοιχεῖα are understood as *minima* in a very nuanced way, being material and yet immaterial, ordered and dancing. As seen clearly by Weiss, ‘stoicheion is not simply a name shared in common by two concepts; it also reflects a common understanding of letters and physical elements as components with an atomic character.’ Now, it turns out that this conception of the *atoma* or ultimate indivisible particles is quite close to contemporary cutting-edge accounts of reality, according to which ‘the fundamental building blocks of matter are not particles, but continuous fluid-like substances known as “quantum fields”’ which dance overlapping with one another.

And this is not far from the furthest reaches of contemporary mathematics, where some argue for a ‘Platonism on steroids: that external physical reality is not only described by mathematics, but that it is mathematics,’ asserting that ‘the mathematical structures in Plato’s realm of ideas or the “mindscape” of mathematicians exist in a physical sense.’

One striking analogy between these correlated fields of modern physics and ancient alphanumeric cosmology is found in the structural resemblance between the periodic table of elements and the recently elucidated phonological arrangement of the Greek κνάξ pangram: κνάξ ζβὶ χθὺ πτὴς φλεγμὸ δρὼψ, in which numerical and phonetic values combine to produce a synthetic arrangement in tabular form, indeed a ‘periodic table’ of Greek *elementa*:

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6. Details in Lougovaya, ‘A Perfect Pangram,’ 180–85. This pangram goes back as far as at least 200 AD, with a possible earlier origin.
Without entering into the details, it will be noted, for example, that the third row contains all the vowels, and that the fourth row contains all three sigmatic consonants. This arrangement, including as it does all twenty-four letters, is a graphic representation of an alphabetic pleroma, a totality, and it gives an intimation of the subtleties underlying many similar arrays found in magical literature. This fundamental physical reality, conceived as fields or mathematical structures, is in fact a mediator between what our intellect can comprehend of order and necessity, and what our senses can perceive of beauty and contingency. As Nicomachus puts it, they (these number-letters) are bridges and ladders to the supernal reality.

The intermediary reality they constitute is matter for the lower world, but it is matter in the sense of a ‘literary matter’; more precisely, it is the revealed books themselves, which have all a liminal status too: they are the matter for the demiurge to do his craft, writing as a scribe, and they are matter for the lower realities to read from.

**Linguistics, Psychology and Cosmology**

This work is about linguistics in a number of its sub-disciplines, as can be seen in my earlier discussions of morphological, prosodic and other such issues, but the crucial linguistic aspect of my research is the twofold segmentation mentioned in Chapter 6. In linguistics, twofold segmentation refers to the two-layered construction of meaning proper to human language: from the meaningless distinctive elements like letters or phonemes, to the meaningful signs, like words or morphemes. When considered from a cosmological point of view, however, the distinctive elements, our ‘letters’ are, as we have amply observed, far from meaningless, but rather each one of them considered a ‘name’ and an ‘infinite’ of its own. The point of departure of every cosmological understanding of language is based on a modified understanding of the twofold segmentation, *sub specie aeternitatis*, for which the ‘distinctive’ elements discerned in the second level of segmentation are far from meaningless.

This is also intimately associated with Whorf’s conviction that ‘science, if it survives the impending darkness, will next take up the consideration of linguistic principles,’

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7. As when there is question of ‘the Matter of Britain’ or ‘the Matter of Troy.’
9. This is studied in its historical relation to atomism in F. Hallyn, ‘Le Modèle alphabétique de l’atome ancien,’ *Alliage* 57-58 (July 2006).
and his detailed description of a series of seven initial ontolinguistic planes, from the acoustic to the syntactic, and ‘on to further planes still, the full import of which may some day strike and stagger us.’¹⁰ His reference to an intermediary realm is strikingly close to those mentioned in the previous section:

the physical world may be an aggregate of quasidiscrete entities... not fully understandable as such, but rather emergent from a field of causes that is itself a manifold of pattern and order... As physics explores into the intra-atomic phenomena, the discrete physical forms and forces are more and more dissolved into relations of pure patternment.

Metaphysics and Theology

This work is about metaphysics and theology insofar as it is a study of principles, of the foundations of existence and of the constitution of matter in different levels, drawing from the language of philosophers as much as from the language of theologians. As already discussed in Chapter 8 above, our interest here has to do with that ‘matter’ or ‘receptacle’ or ‘heterogeneous object’ ‘whose only positive attribute is the necessity by which the hypothesis of its existence imposes itself.’¹¹

Characterised as ‘difficult and obscure’ (Timaeus 49a3) or ‘invisible and amorphous’ (51a7), the matrix of the alphanumeric elements is at once solar and lunar. The στοιχεῖα are paradoxical in that they are simultaneously luminous and obscure. They are the conglomerate of forms which make possible our informatio,¹² our intellectual discernment through delineation, and at the same time they are in themselves a complex, a pleroma, of impenetrable and shifting ambiguity, like snakes, and like ungraspable utterances in the air.

Several aspects of this ‘matter’ have been discussed sufficiently above, and to close this section I would just like to recall and specify the architectural cosmogonic role of the στοιχεῖα. In view of their attributes and functions, and after such a long exploration, I find that the most apt image for the letter-numbers are those stakes or pegs used by land surveyors as reference points to determine the construction of new buildings. The first step is to extend a measuring tape through the centre of the area, this is called a baseline; then a grid is established, with the grid lines often identified by marking the stakes, alphabetically in one direction, and numerically in the other direction. These stakes are only temporary, they are an intermediate stage between the original blueprint and the actual building.

¹². Ar. ṯašawwur; see R. Capurro, Apud Arabes: Notes on Greek, Latin, Arabic, Persian, and Hebrew Roots of the Concept of Information, 2014, II.1.
Historical Conclusion: The Alphanumeric End

Around the medieval Mediterranean, and once again spreading from the East, a great wave of change is moving westward from around the eighth century. It is so fundamental in nature and so momentous in its incalculable effect, that I could only liken it to the great shifts of tectonic plates, determining in discreet yet decisive ways the future of the great cultures built upon them. I refer to what might be named 'the alphanumeric scission', the separation between letters and numerals which resulted directly from the adoption of the Indian numerals. Far from happening as if by decree in a once and for all manner, this adoption took place over several centuries, gradually and irregularly. Its landmarks have been charted extensively for the different cultures and their respective writing systems.

The adoption of the numerals into Arabic has an important signalling event in the visit of a group of scholars from India to Baghdad in 771. Prior to that embassy, there had been an important mention of the numerals in 662, by the Syrian bishop Severus Sebokht, giving a strong indication of the importance of Syriac in the transmission of knowledge across cultures. This famous testimony by Sebokht may indicate not only an earlier Arabic acquaintance with 'the nine symbols', but also, through the Greek church, a first point of contact with the Byzantine Greek-speaking world, where

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otherwise the usage of the numerals was very limited until the thirteenth century. The first Greek work to systematically use the new numerals is the Μεγάλη και Ἰνδικὴ Ψηφιφορία (The Great and Indian Computation) authored by Maximus Planudes in 1252. Before that there is uncertainty, but we know that the most ancient manuscript of Euclides’ Στοιχεία, dating from 888, contains glosses with the Indian numerals which predate Planudes’ work. Hebrew scholarly literature was intimately related to Arabic scholarship through the use of the Judeo-Arabic script; the introduction of the positional system is due to Abraham ibn Ezra in the early twelfth century, using initially a hybrid notation with the opening letters of the Hebrew alphabet. In Latin-speaking Europe, the first preserved example comes from the Codex Vigilanus, dated 976, but it was much later, in the twelfth and thirteenth centuries, through the scholarly activities based in Sicily and Toledo, that the usage of the new numerals would be consolidated and disseminated. A remarkable 1153 manuscript from Palermo illustrates the complexity of the situation: it is a trilingual psalter in which numerals appear in alphabetic notation in Greek, in Indian notation in Arabic and in Roman numbers in Latin.

In the light of such a panorama, and craving the conceptual clarity afforded by a time frame, I assume as two significant boundaries of this long process of adoption, first, the publication of al-Khwārizmī’s Kitāb al-jamʿ wa-al-tafrīq bi-ḥisāb al-hind, The Book of Addition and Subtraction According to the Hindu Calculation, dated sometime after 800; and, secondly, the publication in 1202, in Florence, of Fibonacci’s Liber Abaci— I do so on the understanding that both publications marked, rather than the

20. See Burnett, ‘The Transmission,’ 29; and also passim C. Burnett, Numerals and Arithmetic in the Middle Ages, Variorum Collected Studies 967 (Farnham, UK: Ashgate, 2010).
22. Only extant in Latin translations of the twelfth and thirteenth centuries, see Berggren, Episodes, 32; Kunitzsch, ‘The Transmission,’ 3.
23. For a vernacular, crafts related tradition parallel to the channels that converged in Fibonacci’ work, see J. Høyrup, Jacopo da Firenze’s Tractatus Algorismi and Early Italian Abbacus Culture (Birkhäuser Verlag, 2007).
beginning, an advanced stage in the long process of adoption of the Indian numerals in their respective circumstances.

Although it is impossible to ascertain the many consequences brought about by the usage of the new numerals, I would like to observe how on a fundamental level, and in the cases of languages from Semitic and Indo-European stock, this new system of numeric notation lays bare for the first time in graphic fashion the decimality underlying their numerical terminology.\textsuperscript{24} As has been mentioned previously,\textsuperscript{25} when speaking of the difference between Zahlwort and Ziffer, writing 2, 20 and 200 is as closely descriptive of the underlying decimality as writing β, κ and σ is foreign to it in its arbitrariness. Apart from the obvious and recognised advantages that this brought to all the fields dependent on computation, like accounting and combinatorics, it is not hard to surmise that a long-term cascade effect may also have impacted the most disparate fields of knowledge.

Many major cultural developments took place around the Mediterranean in the High Middle Ages, and there have been attempts to relate them in a grand theory. Focusing on the thirteenth century, the ‘age of the summae,’\textsuperscript{26} Erwin Panofsky famously drew a detailed analogy between the origins of scholasticism and the flourishing of Gothic architecture, using the term manifestatio, in the meaning of ‘elucidation of faith by reason,’ as the ‘first controlling principle of Early and High Scholasticism.’\textsuperscript{27} The requirements of the classic High Medieval Summa were three: totality (sufficient enumeration), systematic arrangement (sufficient articulation), and distinctness and cogency (interrelation). These principles in themselves were hardly new, but the scholastics, in contrast to the thinkers of previous centuries, ‘felt compelled to make the orderliness and logic of their thought palpably explicit.’\textsuperscript{28} And I wonder, could not a similar observation be made in the sister traditions, considering for instance the works of Maimonides, and setting the Ikhwān’s Rasā’il as a comparable edifice? My time frame is wide, or perhaps simply and avowedly, loose, because it is given by the undecidable dates of the alphanumerical scission.

It is said that through various chains of transmission, there was a rebirth of mathematics in Europe in the twelfth century.\textsuperscript{29} These are the times of the rise of the

\textsuperscript{24} In fact, a great majority of the world’s number systems, across all of its roughly 7,000 languages, reveal decimality in one form or another'; see C. Everett, \textit{Numbers and the Making of Us: Counting and the Course of Human Cultures} (Cambridge (MA): Harvard University Press, 2017), 65.
\textsuperscript{25} Above, p. 54.
\textsuperscript{28} \textit{Ibid.}, 34.
\textsuperscript{29} J. Sesiano, \textit{The Liber Mahameleth: A 12th-century mathematical treatise} (Springer, 2014), xiii.
universities and the renovated reception of Aristotle. In the field of music, which in the guise of grammar and arithmetic is completely central to this enquiry, it was the Paris school of the thirteenth century which introduced the mensural notation still used today, articulating music through an exact and systematic division of time. In a story with a remarkable ‘Pythagorean’ echo, it is said that also in the thirteenth century, upon hearing the rhythmic hammering of the smiths, Jalāl ad-Dīn Rūmī was inspired to devise the music and the dance of the Mevlevi sema, still practiced today, and this brings us to the other important related field of the contemplative orders and mystical movements.

Just as the Kabbalah was becoming a distinct movement, we observe how a number of Christian monastic orders began to be defined. Carthusians, Cistercians, Franciscans and Dominicans, all originate or crystallise within a span of less than two centuries. Something similar took place in the Islamic world with the consolidation of the Qādirī, Shādhili, Naqshbandi, Kubrawi and Mevlevi Sufi orders.

Willing to make sense of all those developments, and in numerous others which it would be out of place to mention, and all in the light of the alphanumeric scission, I go back to the basic observation of a division: as the previously united aspects of the alphanumeric element broke, so must have broken something in many fields of human endeavour. As number and letter were gradually being revealed as separate entities, so in many other fields, what was previously a cryptocrystalline harmony became an explicit harmony, a shining crystal.

Similar and complementary observations could be made about the beginning of the alphanumeric age: I am left to wonder how inscrutably related may be the incipient letter-number conjunction and the momentous developments experienced by Greek culture after the sixth century BC. Closer to parts of this research, for instance, is Luz’s observation that the middle of the third century BC may be considered a time of special flourishing of the technopaignia in their many dimensions.

At the closing of this era of sorts, over the centuries-long period during which the letter-numeral separation was effected, it is as if number was laid bare, no longer clothed in the same way as words. Naturally, everything had to change and, naturally, it is impossible to trace all the concomitants of this change. These pages, therefore, and the statements made here, cannot be, and do not mean to be in any way categorical, but they are rather meant as an invitation to a wide and incisively interdisciplinary

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30. Hyman, Walsh, and Williams, Philosophy in the Middle Ages, 409.
approach to many major cultural shifts in the Mediterranean international High Middle Ages.
Appendix A: Latin Grammarians

Where should a grammar start? Some have started their grammar treating of the sound [vox], others the letters, others the syllables and others the cases; we will do so treating of the definition. Who were right then? Those who started from either the definition or the letters, because the sound is common to all, including the laymen without any need for grammar. And so, those who started from the letters obviously reasoned this way: the beginnings [initia] of the art of grammar originate from the sound, which is formed of elements. And what is an element? The beginning of any single thing, from which it grows and into which it is resolved. The sound [vox] then, as we said, has the letters as support; the letters come together in syllables, the syllables gather in words, the word gives rise to sentences, and the sentence, divided in parts, goes down to the level of virtues or vices.

The Aristotelian definition of the element as a quo sumitur incrementum et in quod resolvitur, is found over and over with little variation in grammarians from the second to the tenth century, including the famous Donatus. Here is Diomedes (c. 375), De arte grammatica (Keil I), with some interesting lines about our subject.

II, 'de littera'
L. est pars minima vocis articulatae ab elemento incipiens una figura notabilis [...] l. est vocis eius quae scribi potest

[256]
appendix

forma [...] elementum est minima vis et indivisibilis materia vocis articulatae vel uniuscuiusque rei initium a quo sumitur incrementum et in quod resolvitur. huius figura littera vocatur; et sunt omnes figurae litterarum numero XXIII. sed harum potestates, quas elementa nominamus, plurimae intelleguntur. litteras etiam uetere elementa dixerunt, quod orationem velut quaedam semina construant atque dissoluant. etenim diﬀert utrum quis dicat elementum an litteram an per se, quia elementum quidem est vis ipsa et potestas, littera autem ﬁgura est potestatis, a vero nomen est et potestatis et ﬁgurae. igitur elementum intellegitur, littera scribitur, a nominatur.

ment is the smallest force and the indivisible matter of articulated sound, or else the beginning of every single thing, from which it arises and into which it resolves. The sign of such [element] is called ‘letter’, and the signs of the letters are in total twenty-three. But their powers [potestates], which we call ‘elements’, are understood in various ways. The people of old called the letters elements, because they bring the sentence about as some sort of seeds, and then dissolve. There is also a difference depending on whether people refer to the element as a letter or in itself, for the element is a force itself and a power, while the letter is the sign of a power. ‘A’ for instance is the name of both a power and a sign: as element it is understood, as letter it is written, and it is named ‘a’.

In an attempt to clarify several such terms found in this grammatical tradition, Martin Irvine sums up:

The common doctrine on litterae, therefore, included the following assumptions: a ‘letter’ is a minimal phonic/graphic unit (elementum) of ‘scriptible utterance’ (vox litterata); the concept of ‘letter’ entails distinctions by ‘properties’ [...] In the grammatical model of language, every level of discourse ‘is resolved’ (solvatur) [...] into the parts of the level immediately below it, and all discourse is ultimately resolvable into ‘letters’, the ‘elements’ or ‘atoms’ of writing.³³

Or in the words of Sergius (c. 450),³⁴

omnis oratio solvatur in verba, verba denuo solvantur in syllabas, rursum syllabae solvantur in litteras, littera sola non habet quo solvatur. ideo a philosophis atomos dicitur.

Every sentence is resolved in words; words resolve in syllables; syllables resolve in letters, but the letter alone has nothing to resolve into. This is why it is called atomos by the philosophers.

³³. Irvine, Making of Textual Culture, 100.
³⁴. GLK, 4, 475.
**Mundi elementa**

In the following lines, Priscian (6th century)\(^{35}\) gives the Latin equivalent of the cosmological association with the elements.

They called the letters with the name of the elements because of their resemblance to the elements of the cosmos \([...]\) The letter is the sign \([nota]\) of the element \([...]\) It is a misuse when they call the elements letters and the letters elements.

Finally, here is a lively dialogue from the grammar by Iulianus Toletanus (c. 680)\(^{36}\) introducing some aspects not found previously.

**What is a letter?** The smallest part of an articulate sound. **How is that?** If you take a noun, say ‘Honorius’, and you divide it in syllables, then you divide the last remaining syllable in letters, then you can no further divide the remaining letter: that is the smallest part. **How so an articulate sound?** There are two types of sound, articulate and confused. **What is the confused one?** The one which cannot be put in writing, like the bleating of sheep, the horses’ neigh, the cows’ moo etc. **And why are they called confused?** Because the voice (sermo) is expelled with the vibration of the air but the sound has no measure. **And what is the articulate one?** The one that can be grasped thanks to the articulation of the writer. **Why is it called articulate?** The major limbs of man are called artus, and the minor ones articulations, such as the fingers, and whatever can be grasped thanks to these articulations of a writer is called articulate sound. **And why is it called littera?** As if we said legitera. **How is that?** Because it provides a way (iter)

\(^{35}\) Institutionum Grammaticarum (Keil vol. II).


for those who read, or because it is repeated (iteretur) during the reading. Who invented the Latin letters? Nicostrata, Evander’s mother, but not because she invented them in Italy, but because she brought them over from Greece. By what name was she called after this invention? The nymph Carmentis. Why so? Because through her prophetic songs (carmina) she would sing of things to come. How many are the different kinds of letters? Seven. Which? Hebrew, Attic, Latin, Syrian, Chaldean, Egyptian and Getan. Who invented each of the letters? Moses the Hebrew, the Phoenicians the Attic ones, Nicostrata the Latin ones, Abraham the Syrian and Chaldean, Isis the Egyptian ones and Gulfila the Getan.
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