CONTENTS

VOLUME I

Translation Society Preface i
Translator’s & Editor’s Preface v
Foreword vii
Introduction xii

A. THE THEOREMS OF THE TONE-NUMBER

§1. The Monochord 1
§2. Tone-Value and Tone-Number 3
§3. Tone-Value 5
§4. Tone-Number 9
§5. String Lengths – Wavelength 11
§6. Vibration-Numbers = Frequencies 13
§7. The Reciprocity of Waves = String Length and Frequency (Space and Time) 14
§8. Rhythm and Periodicity 19
§9. Resonance 28
§10. Interference 32
§12. Coincidences of the Theorems of Tone-Number and Their Value-Formal Ambivalences 43

B. THE THEOREMS OF THE TONE SERIES

§13. The Overtone Series 46
§14. The Undertone Series 54
§15. The Whole Numbers 57
§16. The Quanta 60
§17. The Intervals 67
§18. Harmonic Logarithms 80

C. THE THEOREMS OF THE TONE-GROUPS

I. THE PARTIAL-TONE DIAGRAM

§20. The Partial-Tone Coordinates 114
§21. The Rationing of Partial-Tone Coordinates 122
§22. Major and Minor Series of the Partial-Tone Coordinates 131
§23. Polarity 148
§24. The Equal-Tone Lines 157
§25. Value-Forms for 0/0, 1/1, and the Equal-Tone Lines 176
§26. Index and Generator
§27. Parabola, Hyperbola, Ellipse
§28. The Proportions
§29. Harmonic Proportions in Architecture
§30. Trinity

II. THE ARRANGEMENTS
§31. Variation Models
§32. Combination Models
§33. Polar Diagrams
§34. Tone-Spirals and Tone Curves
§35. The Complete Partial-Tone Diagram
§36. Logarithmic Arrangements
§37. Tone-Space
§38. Sound-Images

VOLUME II
D. SELECTIONS

§39. Scales
§40. Chords
§41. Ektypics for Melodies and Chords
§42. Cadence
§43. Counterpoint
§44. Directions
§45. Interval Powers and Constants
§46. Symmetry
§47. Space and Time
§48. Enharmonics
§49. Tempering
§50. Number Symbolism
§51. Tolerance: a Dialogue (and Review)
§52. Hierarchy
§53. Norm
§54. Harmonic Cosmogony

E. HISTORY

§55. Summary of the History of Harmonics

* Afterword
Partial-Tone Logarithms
Great Table of Ratios
The Author’s Publications
Sacred Science Translation Society

The Sacred Science Translation Society is very happy to release the first of what we hope to be a long line of translations of important source works in esoterics and cosmology. This project began with the generous donation of an angel benefactor who agreed to contribute enough funding to complete at least half of this first work, Textbook of Harmonics, by Hans Kayser. Then through the generous contribution of another 5 individuals, we were able to raise the funds to translate the remaining half of the book.

We had always considered Joscelyn Godwin to be the ideal translator for this text, so we approached him and he directed us to his son, Ariel, who had graduated from college with a degree in German, and who had been helping his father with some translation work. This was an excellent opportunity, since Ariel was more affordable and available than Joscelyn, while Joscelyn generously agreed to donate his services in editing the book to assure that we had an English translation that was equivalent to the German original. Ariel and Joscelyn have accomplished that goal in this edition, and we are deeply grateful for their dedicated and generous contribution to this project.

Upon completion of Kayser’s Textbook, we were very fortunate to come across another angel benefactor who agreed to fund the translation of a second work, The Law of the Kosmos, by Eberhard Wortmann, a masterpiece of esoteric cosmology and the Glass Bead Game, translating the geometric code from Plato’s Republic/Timaeus into a series of mysterious and profound diagrams of great originality. Upon completion of that second text, we were confronted with the problem of finding more funding for another book, or losing Ariel to another job, which we did not want to do. Fortunately, our first angel agreed to fund the translation of another masterpiece, De l’architecture naturelle, by Petrus Talemarianus, another text with the technical sophistication of Kayser, showing the mathematical and symbolic meaning and correspondences between the ancient architectural and symbolic systems of the world.

The Sacred Science Translation Society is our attempt to develop a better way to continue to fund similar translations of equivalently important works, never before translated into English, without having to rely upon the rare and generous donations of a few rare individuals. Now that we have three translations ready or close for publication, we have decided to create a society dedicated to the continuance of this project. We consider this project to be a non-profit venture, and all proceeds generated from the sales of these translations will be dedicated to translating more books. If we can find 30-50 members
who agree to purchase each book in the series, at a 30% discount off the retail price, this
would generate enough funds to have each new book pay for the translation of another
book, creating a perpetually driven translation mechanism, through which we could make
available dozens of fascinating titles from many languages.

We further intend to explore turning this entire project into a non-profit foundation, so
that we could apply for grant money to fund the translations and publications, and to
make the donations and purchases of members tax-deductible as a charitable contribution.
Since this may take some time to develop, the Translation Society is a means whereby we
can continue the project until the time we have developed more funding possibilities.

**Origins of this translation**
The individuals who are responsible for funding this translation all derive from a tradition
of financial market analysis specializing in Gann theory, an esoteric market tradition
founded upon the work of W. D. Gann, a 33rd degree Freemason, and legendary financial
forecaster and trader. In 1909, in an interview with the precursor of the Wall Street
Journal, Gann stated that his forecasting principles were based upon what he called the
Law of Vibration, a harmonic ordering process which governed everything in the
universe, including the financial markets. He used a secret trading tool called the Square
of Nine, which he was said to have discovered in India, and about which he only ever
wrote one paragraph of explanation, to day trade on the floor of the exchange, and would
consistently call market tops and bottoms.
Since Gann never explained how this tool worked, for the last century financial researchers have had to attempt to reverse engineer his theories using only his marked-up Square of Nine charts to discover what exactly he was doing. A brief perusal of this volume will quickly demonstrate why Kayser’s work would be of importance to these analysts, as this treatise presents the most detailed elaboration of universal harmonics with its applications to every branch of physical phenomena, and includes many of the exact same diagrams discovered in Gann’s courses and papers, such as the Square of Nine. The similarity between Gann’s and Kayser’s work has led some researchers to speculate whether Gann may have known of Kayser, being that they were contemporaries. If not, they certainly drew from the same sources of esoteric and cosmological tradition hidden within ancient and alternative scientific teachings.

I mention the connection with Gann as a demonstration of the potential practicality and applicability of the knowledge contained within this treatise. Many would think this study would apply primarily to musicians and musicologists, but surprisingly there are more market analysts who are familiar with Kayser than musicians. Another interesting field working closely with Kayser’s material in the design and energetic sciences is that of Egyptian BioGeometry, inspired by Dr. Ibrahim Karim (see www.biogeometry.com). This tradition cross-correlates research in the field of French Vibrational Radiesthesia with the temple design science of Ancient Egypt and the sacred architects of the great ancient civilizations. They see Kayser’s work as demonstrating a “physics of quality” fundamental to understanding the reason why the ratios and proportions of sacred architecture create a subjective experience different from that of profane architecture. For those looking for elaborations and applications of Kayser’s harmonic theories, either of these fields will provide direction for a deeper exploration and experimentation.

About this edition and future editions
This current Translation Society Edition is a somewhat rough, pre-press edition provided for those who have been waiting years for the completion of this translation. The text is complete, and represents as excellent a presentation of Kayser’s style and form as is possible in English. The diagrams are all included and have had all the terminology translated into English. Unfortunately, some of the diagrams are not as clean and clear as we would like. The nature of the original edition from which we took the scans, with its particularly thin and transparent paper, caused the text from the other side of the page to bleed through at times. We do intended to reshoot or redraw all the diagrams, and to also translate the German musical notation into English notation for a future edition, but the challenges posed in doing this now, would have further delayed the release of this edition by another six months or more, so we decided to release it as is, since the difference is primarily aesthetic, not informational.

Our plans are to release an official collector’s edition at some point down the road, with perfect, perhaps redrawn diagrams, in a folio edition like the original, with slipcase and all the frills, as well as producing an affordable student edition for the wider public. In these editions we also plan to include a collection of essays by original students of Kayser’s, family members, and scholars. However, it will take some serious funding to complete the project in this scope, the equivalent of translating ten books, and will likely
require our finding grant money, a large donor, or a publishing partner to make this 
vision possible.

We will continue to explore all these avenues, and we encourage anyone with any further 
or alternative ideas to contact us. In the mean time, we feel it more prudent to dedicate 
the proceeds from these Translation Society Editions to fund further translations, which 
we can make quickly available in the current format, for those primarily interested in the 
information. There are 12 further books by Kayser (see listing p. 613 of Volume II) 
which we should be able to translate within the next few years if we find enough support 
for the Translation Society. We have already prepared to have Ariel begin translating the 
next Kayser volume, Paestum, *The Nomoi of Three Ancient Greek Temples at Paestum*, 
Kayser’s primary work on the harmonics of ancient architecture. We intend to follow 
that work with *Harmonia Plantarum*, Kayser’s work on the harmonics of plant form.

**HansKayser.com**

We are in the process of completing a Hans Kayser website, [www.HansKayser.com](http://www.HansKayser.com), 
where we will collect information, articles, and links related to Kayser’s work, harmonics 
and related subjects. Kayser’s books will be available through this site, and we will 
provide an open discussion forum where people can discuss their research and thoughts 
on the material. We expect to have this site available within a few months of the book’s 
release, and invite everyone to come communicate with each other and develop a lively 
research forum, spanning numerous fields of expertise.

W. Bradstreet Stewart  
Sacred Science Institute  
Idyllwild, CA, June, 2006
EDITOR’S AND TRANSLATOR’S PREFACE

The purpose of this translation of the Lehrbuch der Harmonik is to make Hans Kayser’s masterpiece accessible to the English-speaking world. The Lehrbuch, as its title proclaims, is a “textbook,” not a work of literature (though there are many eloquent passages in it). The textbook translator’s duty is to give the reader the closest possible equivalent of the original, without trying to “improve” it either by turning it into English literature, or by simplifying a grammar and vocabulary that are integral to the author’s thought process.

The compound words that German writers are free to create often have no single English word as an equivalent. Some favorite Kayserian coinages are Teiltonkoordinaten (partial-tone coordinates), Monochordkontrolle (testing on the monochord), or the endless compounds beginning with Ton (tone-number, tone-value, etc.) In finding equivalents for these, we have followed American English usage.

When Kayser quotes from non-German sources, which he does in great abundance and variety, he habitually uses the German translations available to him. Sometimes these date back to the eighteenth century, and often they are flowery and poetic at the expense of strict accuracy. Normally a translator would seek out the best recent translation of such works and insert it, but we find this inappropriate here. We think that our readers are better served by a close English equivalent of Kayser’s versions of foreign texts, especially the classical ones. Then our readers can get a sense of how Kayser read the texts and saw fit to present them to his readers. The reverse principle applies when he quotes other German writers, especially poets: we have rendered them literally rather than poetically.

Kayser’s readings of other writers, like his German style and his word coinages, are part and parcel of his whole enterprise. Although he was an extremely learned man, it may be that some translations misled him through being inaccurate or overly poetic, causing him to draw unwarranted conclusions from them. This is especially the case with the gnomic utterances of the Presocratic philosophers, including the Orphica and Pythagorica, when he quotes them from secondary sources. In such cases, the misleading is not to be corrected by us, any more than an editor of Kepler would presume to correct his tables of planetary motion. It is Kayser’s Orphism and Pythagoreanism that are significant here, not those of current classical scholarship.

We have made an exception in using the Revised Standard Version of the Bible for most scriptural quotations, and Benjamin Jowett’s 19th-century translations for most quotations from Plato. The one excerpt from an English source (Shakespeare) is of course given in the original.

The Anglicization of Chinese names and terms always presents some difficulties. In his text, Kayser used the standard German versions, and in this translation we have replaced them with the most standard Anglicization; for example, Kayser’s “Laotze” is rendered as Lao Tzu, rather than the more accurate but less familiar Pinyin Romanization Lǎozǐ (老子).
The text of this translation retains the German names of the musical notes. It was necessary to preserve this system in order to avoid disjunction between the text and Kayser’s diagrams. This may present some confusion to readers unfamiliar with the German system, but its rules are simple enough. Instead of “flat” and “sharp,” the suffixes “es” and “is” are generally added to the letter of the note, except for our “b” which the German system designates as b, while our “b” becomes h. The system is shown in the following table:

<table>
<thead>
<tr>
<th>German notation</th>
<th>Anglophone notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ces c cis des d dis es e eis fes f fis ges g gis as a ais b h his</td>
<td>cb c e# d# e# f# g# a# b#</td>
</tr>
</tbody>
</table>

For further clarity, all names of notes in the text are in bold type.

We have made every effort to reproduce Kayser’s diagrams as clearly as possible, although the luxurious quality of the original edition (oversized, printed on thick paper with several foldout charts) could not be imitated in this edition. Kayser’s long and extensive Index to his Lehrbuch has not yet been translated; this is a project for a future edition and revision of this book.

*We would like to thank Professor Siegmund Levarie for his many years of encouraging Joscelyn’s harmonic studies, and for his advice in this project; Dr. Peter Westbrook for having the vision to set the project in motion; W. Bradstreet Stewart of the Sacred Science Institute for overseeing it; and the anonymous donor who made this translation possible.

Ariel Godwin, Columbus, Ohio
and Joscelyn Godwin, Hamilton, New York
2003-2006
FOREWORD

With this work, I offer those readers interested in a new philosophical direction (*philosophia* = love of wisdom, spiritual aspiration) a textbook for a field of study which, after existing in classical times under the name of Pythagoreanism, appeared only sporadically in later times, and currently has no existence in our modern worldview.

“Harmonics” comes from ἀρμονικός (= harmonic), but its root is the verb ἀρμόττω (= to put together, arrange). This arrangement, put together from tone and number, flowing out in a harmony of the world (cosmos), is the original concept of “harmonics” as Pythagoras and his successors understood it. The concept of “akróasis” (= listening), in opposition or complement to aisthesis (= viewing), which I first applied in my book *Akróasis*, initially serves simply to prevent the continual confusion of “harmonics” with the musical study of chords. But perhaps it will be better in future to use “harmonics” and “harmonic” more in the sense of individual harmonic investigations, “akróasis” and “akróatic” more in the higher sense of a general mentality pervading everything—just as the following Introduction is entitled “Akróasis,” while the book itself is called *Textbook of Harmonics*.

In most modern reference books, “harmonics” is explained simply as “the study of harmony,” i.e. the study of chords in music. This definition relates to our concept of harmonics only in that the chord, as a theorem, represents one of the many special cases of general harmonics (see §40). Only in the *Schweizer Lexikon* have I found an entry on “harmonics” in which the concept is explained speculatively with reference to A. von Thimus and my works (E. von der Nüll’s work mentioned there has nothing to do with harmonics in our sense). Harmonics is defined there as a “metaphysical rationalism”—not a bad definition, if one knows from experience how hard it is to describe, in a few words, a discipline that is in the process of rebirth. But this definition is too narrow, and is dictated by the understandable difficulty of classifying harmonics purely in terms of the history of philosophy.

Because harmonics, as I have attempted to reawaken and reestablish it in my thirty years of work based on Pythagorean sources (see the summary of my works at the end of this book), is not simply a philosophical speculation in the sense of a “metaphysical rationalism.” It is founded upon three pillars:

a) Upon scientifically testable conditions. These are the harmonic theorems of tone-number, psychophysical realities that we can prove in nature and in our psyche. This book is organized according to them. In this way, harmonics is a *science*.

b) Upon a progression of correspondences. But these correspondences do not occur in a series of vague analogies. Their roots are in the harmonic theorems, and through these they are verified. This way of thinking and investigating is no longer merely scientific, but takes place in a field of connections between material, psychic, and spiritual forms which, without reference to the harmonic theorem, appear to have nothing to do with one another. In this way, harmonics is a *doctrine of correspondences*.

c) Upon a system of value-forms which, conceived autonomously but confirmed by theorems and made universal in their meaning through correspondences, achieve symbolic character. Even individual theorems, and yet more so the value-forms, can become harmonic symbols. Their true domain is that of metaphysical, religious, and mythological forms. In this way, harmonics is *symbolism*. 
If I nevertheless believed myself entitled to call harmonics a new philosophical direction, it was only in view of the renewal of the original concept of “philosophia,” as I defined it above.

Every major harmonic work, with its tone-number descriptions, tables, formulae, and diagrams, initially gives the impression that at least a great understanding of music theory and mathematics is required to comprehend it. This is not the case. To understand the most important fundamentals of harmonics, it is sufficient to know the multiplication tables and a few basic geometric and musical concepts—these latter are explained simply in this book for those unfamiliar with them. But in any case, the reader must work along with the book, carefully drawing the diagrams with a pencil and ruler, continually working out the tables himself with their simple tones and numbers, and hearing the tones for himself on the monochord; otherwise he risks getting out of his depth with the optical and acoustic apparatus that is fundamentally important for understanding. If he makes this effort, he will soon see the apparent complication of the tables, drawings, and diagrams resolve into a few very simple facts. Besides, it is precisely this working along, rather than simply reading and following intellectually, that builds those foundations from which harmonic image-concepts can begin to come alive in the psyche.

For the understanding of harmonic fundamentals, then, a standard secondary school education suffices. These fundamentals are, in any case, explained in the most elementary manner possible in the early chapters of this book. If the fundamentals later expand into the widest domains of knowledge, and reference is sometimes made to more complex things, this is requisite for an establishment of harmonics in those domains and is a concern of the individual disciplines in question. This “ektypics” does not itself affect the fundamentals, so the reader who lacks the relevant specialized knowledge should accept them as far as he understands them, and pass them by when he can no longer follow along. He will still find enough to encourage him to contemplation and study.

Those who are encountering harmonics for the first time in this book are advised, although this is not entirely essential, to read Akróasis, which was written after the completion of this book and published in 1946 (Basel: Verlag Benno Schwabe; authorized reprint, Gerd Hatje Verlag, Stuttgart, 1947).* There I attempted to give a brief, concentrated illustration of the study of harmonics up to this time. In the present “Textbook” it is perhaps best to read the Introduction after this Foreword, then §51, the Dialogue on Tolerance, in which an attempt is made to negotiate a universal harmonic “equilibrium.” Readers interested in specific topics, e.g. mythology and symbolism, should perhaps read §54 (Harmonic Cosmogony) after the Introduction, and then study the fundamentals from §1 onwards. Philologists and historians might prefer to start with §55 (Summary of a History of Harmonics), and then, if there appears to be “something in this,” to bite into the tough apple of specialized harmonic study. Here the Index is especially helpful, since its terms synthetically unify the same topic often discussed variously in the individual chapters, besides directly explaining some specialized terms or indicating the passages where they are explained.**

* Translator’s note: Akróasis: The Theory of World Harmonics was translated into English by Robert Lilienfeld (Boston: Plowshare Press, 1970), but is now out of print.
** Translator’s note: Regrettably, the time was not available for translating and including the Index in this first edition (see also the Editor’s and Translator’s Preface).
The musically versed reader should not confuse the concept of the “study of harmony” with “harmonics.” The latter does indeed use certain elementary expressions of the former, but otherwise goes entirely its own way, and in the process must incorporate many concepts that have nothing to do with the musical study of harmony. In a further sense, music is merely a special case, albeit the most important, of the artistic side of harmonics. In addition to music, there is a harmonics of every science, a harmonics of philosophy, a harmonics of religious symbolism, etc., and all these individual harmonic domains are unified by harmonics itself as an autonomous study, containing its own justification. The following Introduction will explain what this autonomous study is believed to be, and what its character is.

Those familiar with my earlier harmonic works will notice the greater extent and the comparatively broader foundation of religious-symbolic elements in this book. This is not the result of a change of view. If the insights I have obtained from editing the 13-volume collection Der Dom, Bücher deutscher Mystik (Inselverlag, Leipzig, 1918-25) also offer me the possibility of illuminating harmonic problems correspondingly, it still lies in the nature of harmonic symbolism itself to arrive repeatedly and often involuntarily, by means of its akróatic image-concepts, at the deepest matters of thinking, willing, and feeling. Because surprisingly simple interpretation for many symbols from the most ancient religions, mythologies, and cosmologies can be found through harmonic analysis, close attention is paid to the relevant historical sources. It is not my intent, in the sections in question, to put forward a new foundation of religion, or even to pontificate about matters of religious belief; each reader can draw his own conclusions from the content of these sections.

In paging through this book, some readers may be disconcerted by the hundreds of quotations and references from numerous domains of knowledge—in short, by the apparent accumulation of a vast quantity of stuff. In this regard, the reader is entreated not to let himself be duped. It is easy to cram knowledge without limit into one’s head, spit it out again in the form of books, and still remain a fool. The extreme diversity of the material treated by harmonics necessarily results in the vast scope of the literature quoted and discussed in it. But any scholar can see that despite the apparent vastness, there are great, often hardly forgivable shortcomings in the discussion of the specific domains in question, as well as in the bibliographies. Here I can only excuse myself by the fact that this work was written in the countryside during the war years, 1942-1944; therefore I relied mainly on my notes from earlier years and my own library. It will not be hard for a mathematician, astronomer, philosopher, literary historian, mythologist, architect, etc., to fill in what is missing from his own specialized knowledge. As for the universality to which every harmonic method of research inevitably leads, the reader is invited to read the discussion of this in §29.1.

The reference to so many disciplines could also give the impression that it is the main intent of harmonics to meddle without authority in the domains of other sciences. Nothing could be further from the truth, because every harmonist, through his work, is above all required to exercise precision and exactitude, and only then set free to meditate; thus he must have the greatest respect for specialization, in the best sense of the word. Finally his science, harmonics, is fundamentally a discipline which must be learned and studied like any other. And if harmonics looks in every possible direction to support its views, if it uses various disciplines to support its insights, occasionally expressing
conflicting viewpoints—well, every science does that, and without that there would be no science, let alone philosophy.

From the specialized philosophical point of view, harmonics has been reproached for not caring about the “continuity” of the development of philosophy since Plato and Aristotle. It is true that the Pythagorean approach to tone-number, and the forms and laws given by it, offer modern harmonists a wealth of autonomous possibilities for research, which can stand perfectly well by themselves outside the development of philosophy up to now. If specialized philosophy has neglected the possibility of this Pythagorean approach or left its “material” evaluation (derivation of the qualitative tone-ratios from the quantitative number-ratios) to the exact sciences, that is its own problem. But to conclude from this that modern harmonics ignores, belittles, overlooks, or arrogantly looks down on the great philosophical achievements as realized in the systems of their propounding geniuses: that violates not only sound “harmonious” understanding but above all the tolerance, the respect for every effort, and the quiet listening to everything existing, to which every harmonist is accustomed and trained in the course of his work. Our motto here is “suum cuique”: to each his own! Let us till our ground as we believe to be proper; in any case we will look ungrudgingly and with great empathy upon the fields and meadows that flower and bear fruit around us!

The tools of the harmonist include a lead pencil, colored pencils, black ink and a few colored inks, a ruler, a square, an accurate compass, a protractor, lots of paper, especially millimeter paper and simple squared paper, and, most importantly, a monochord. As §1 shows, one can easily build this oneself, or have one built. To have this done will cost less than the average violin, which is a necessary purchase for anyone who wants to learn to play the violin.

Harmonics is concerned with the inner development of the harmonic scholar as a self-sufficient and individually validated person. We stand facing the inevitable destiny of ever more overpowering collectivism. The demands made on the individual by a profession, his duties to society, the ever growing difficulty of quiet self-reflection amidst the din of modern times, will require strong counterweights lest unfettered depersonalization drive humanity into a universal ant-like existence. One of these counterweights can be the harmonist’s silent work for himself, without any aspiration to the outside. Just a small room, a table, a chair, and a monochord within reach: here, immersing oneself in harmonic problems, meditating upon the diagrams and tables one has drawn, upon each fine and subtle tone of the scales, chords, melodies, and rhythms—those who are called to this will become creators of a music without notes, which is sheer anachronism in contrast to the greater part of our so-called modern music! All this imparts, to those who know how to “hear,” a harmonic state of soul and spirit that will automatically affect the conduct of the entire person in his professional and exterior life. There could be harmonists in all professions, classes, countries, and peoples. They would hold no conventions, found no orders, choose no presidents, build no temples, hardly become outwardly apparent, and exchange their viewpoints and works only among themselves, in free unification. And since they would have learned to “hear,” they would also know to “speak” at the right time and place, that is, they would try to radiate the atmosphere of their mentality as far as possible. Harmonics thus understood as a self-orientation of modern people, pressured from all sides, is not a flight from reality, but an immersion in it, a listening into reality and the nature of things (see H. Augustin: “Von
der Anhörung der Welt” in Schweizer Rundschau, Jan. 1947). Anyone who has worked harmonically in this way knows that a clean and pure breeze blows within “akróasis” which he can breathe freely, and that humanity, tolerance, and respect is the great three-pointed star that he gains in his work.

This book is arranged so as to treat the realm of harmonic material successively, following the evolution of the theorems. Most things cannot initially be worked through exhaustively, and must be taken up later from different viewpoints. For example, the theorem of “enharmonics” appears in the following ways: (1) as definition, §20.2; (2) in the handling of the enharmonic scale, §45; (3) in the interval powers and constants, §45; and (4) as an independent section, §48. It is similar for many other theorems, concepts, etc., and for this the Index is indispensable as a summarizing thread. Especially, sections I through V of the Introduction, and §55 (Summary of a History of Harmonics), complement each other.

The reason why the bibliographies at the end of each chapter predominantly cite my own works is that many problems were discussed much more exhaustively there than is possible in this Textbook. Also, these earlier writings are the only harmonic works accessible today, besides Kepler’s Harmonice Mundi and A. von Thimus’s Harmonikale Symbolik. Furthermore, unifying all my harmonic works thus far (see their enumeration at the end of this book) through this “retrospection” will make things easier for the reader, all the more because Vom Klang der Welt, Abhandlungen, and Grundriß do not have indexes. Obtaining my other works (especially Abhandlungen, Grundriß, Harmonia Plantarum, and Akróasis, which was written after the completion of this textbook—the remaining stock of Hörende Mensch was burned in an air attack on Leipzig) is not absolutely essential for the understanding of this textbook, but will undoubtedly make the study of harmonics easier as a whole, and will broaden and deepen its understanding.

As a conclusion to this Foreword, I would like to thank all those who made the creation and publication of this book possible: the publisher, who took the risk of such a venture for purely idealistic reasons, the generous donor who made the printing possible, the friends who stood by me most disinterestedly in word and deed, my dear wife Clara, née Ruda, who took on the difficult and painstaking task of copying, and above all those friends and helpers who wish to remain anonymous, who made possible a year of quiet study in this island of peace, surrounded by the most terrible inferno in history.

Near Bern
at the sixth wartime Christmas 1944

Hans Kayser

(revised 1949)
INTRODUCTION

AKRÓASIS
OR
LISTENING

I.

Judaea

In Genesis, the acts of creation out of the tohuwabohu of the primordial waters begin with the words: “And God said: Let there be light ... And God said: Let there be a firmament in the midst of the waters ... And God said: Let the waters under the heavens be gathered together into one place, and let the dry land appear ... And God said: Let there be lights in the firmament of the heavens ... And God said: Let the waters bring forth swarms of living creatures, and let birds fly above the earth ... And God said: Let the earth bring forth living creatures ... And God said: Let us make man in our image ...”¹

And it was so! Thus the act of creation, the work of six days, is accomplished in succinct beats, through the medium of speech, the word, and therefore through the medium of tone.

Psalm 19 begins with the verses: “The heavens are telling the glory of God; and the firmament proclaims his handiwork. Day to day pours forth speech, and night to night declares knowledge. There is no speech, nor are there words; their voice is not heard; yet their voice² goes out through all the earth, and their words to the end of the world.” To tell, say, inform, sound, speak—all these acoustic things, psychically intensified through the antitheses “without speech, without words, with an inaudible voice,” through this secret ἄρμονία ἀφαρής, the inaudible harmony of the Pythagoreans:³ who could overlook the acoustic-harmonic influence that pervades the entire Old Testament, just like an “inaudible voice”? The Judaic philosophy of religion is also full conscious of this. Ben Joseph⁴ writes: “Judaic logic is acoustic, not intuitive. Judaic thought is predominantly an inner speech, words in the heart, Debarim sche bel, which consciousness perceives and judges. In the language of the Bible, instead of ‘I think, I have thought,’ it reads: ‘I speak, I have spoken in my heart.’” Singing, here as in all ancient religions until Christianity, has not only coincidental but substantial significance in the sense of a strong emotion, an aspiration of the soul towards God. In the Zohar, the main book of the Kabbalah, which still preserves ancient traditions of Judaic mysticism, there is a wonderful passage about “the hymns of the angels”:⁵ “Now at sunset, the cherubim who stood at that place and had their domain in the ‘sign,’ beat their wings and spread them, and the music of their wings was heard above. Then those angels who sang hymns in the

¹ Gen. I.
² Not its “speech,” as Luther translates—the Vulgate is correct here with “sonus”!
³ Plutarch: De anima procreat, from Heraclitus.
⁵ Der Zohar in selection, translated by E. Müller, Vienna 1932, pp. 71-72.
night began to sing, so that the glorification of the all-holy rose up from below ... And at
the second vigil, these cherubim again beat their wings upwards, so that the music of
their wings was heard. Then those angels who held the second vigil began to sing ... And
at the third vigil, the cherubim again beat their wings, and the angels sang: Hallelujah,
sing praises, ye servants of Jehovah, praise the name of Jehovah ... thus sang all the
angels who held the third vigil, and all the planets and constellations in the heavens began
to sing." The origin of this “singing” is in acoustic articulation, which is correspondingly
pervaded by consciousness. The same Zohar reads: “‘Those using consciousness will
illuminate’—i.e. consonants and vowels, ‘like the light’—i.e. the melody; ‘of the
firmament’—i.e. the expansion of the melody: the way the notes spread out and flow
along in the melody. ‘And give justice to the multitudes’: i.e. the pauses of the tones in
their continuation, through which the word is heard.”

Before the actual acts of creation at the beginning of Genesis, introduced by the
repeated phrase “and God said,” it reads: “And the breath (ruach) of God moved upon
the waters.” Luther translates ruach as “spirit.” In the Zohar, however, there is the
following commentary: “‘But ‘Ruach’ is the great voice, which rules over the Bohu
and grasps it and leads it to where it is needed. This secret is spoken in the words: ‘The voice
of Jehovah is above the waters,’ in the same sense as in the sentence: ‘The spirit of God
moves upon the waters.’” Furthermore: “‘The world was made at once through the word
and through the breath. As it reads: ‘The heavens were made from the word of Jehovah,
from the breath of His mouth all its multitudes.’” It is well known that the meaning of
the “word” at the beginning of the Gospel of St. John is related to the concept of the
“Logos,” in which “word” is unified with “spirit,” i.e. the acoustic with the metaphysical
principle, whereby the Logos is identified with Christ.

Babylon

In Babylonian mythology there is an ancient Sumerian hymn, a lament to the
destroyer-god Ellil, reminiscent of the “curse songs” that endured into the Middle Ages. Bruno Meißner introduces this hymn as follows: “Remarkably enough, the means by
which Ellil brings forth all these disastrous effects is above all his word. Ellil’s word is
omnipotent here, similarly to the Logos in Judaic-Alexandrian philosophy. Later, other
gods also stepped up to this position, especially Marduk, as in the following song, whose
surviving form is recent but whose later interpolations can mostly be easily removed:
‘The word, above / makes the heavens tremble; the word, below / makes the earth waver;
the word that makes the Annunaki / nothing. His word has no seer / has no indicator; his
word is a rising tidal wave / that has no opponent. His word makes the heavens tremble /
makes the earth waver; his word wipes away mother and daughter / as one wipes off a
rush mat.’ These hymns were accompanied by temple music, performed elaborately. As
we already saw, two choirs usually stood across from one another, alternating their voices


7 Gen. I:2.
11 For example, the misuse of the old Gregorian sequence “Media vita in morte sumus,” against which the
Church Council of Cologne intervened in 1316.
12 Die Babylonisch-Assyrische Literatur, Wildpark-Potsdam 1928, p. 36.
in antiphony.” Of course, these choirs did not only sing curse songs like the one above, but also mainly hymns of praise and thanks to the gods.

**Persia**

In the ancient Persian rites of the Avesta, the meaning of the “word” often changes into the more concrete meaning of the “name.” Zarathustra asks the creator Ahura-mazda in the *Khorda-Avesta:*

> “What is ... the most triumphant, the most powerful, the most majestic ..., what of the whole world, endowed with bodies, is that which purifies the inside the most? To this answered Ahura-mazda: Our names ... O holy Zarathustra ... the most powerful, most triumphant, etc.” And to Zarathustra’s further question—what are these names—Ahura-mazda refers to twenty qualities, such as purity, understanding, wisdom, etc., and calls on him to “retain and utter these names, day and night, sitting and standing.” In another passage, Ormuzd says to Zarathustra: “You should return me, proclaiming the word, to my initial condition, which was all light...”

> “Speak, O Zoroaster, my pure word, when language deserts you and you are without hope. Whoever speaks the pure word in my domain, the world, and sings it in proper form with the high voice of harmony, his soul shall soar freely into the heavenly realms; I, Ormuzd, will make the bridge three times wider for him; he will be heavenly, celestially pure, and will shine.”

> A great, nearly forgotten scholar of this ancient mythology writes: “Zoroaster thinks of the act of creation as mediated not simply through the speech of the great deity, as occurs in other sensorily perceiving religions, although this speech with his idea of the great deity as a great space is wondrous enough; instead he thinks of the enunciated creating word as an independent, spiritual, divine being, just like the other primordial elements, which is an even stranger idea. This creator-word, Honover, appears often in Zend writings, and is also applied to other divine beings. According to the Yacna, it existed before all other created beings: ‘The pure, holy, speedily working word (honover), O Zoroaster, was before the heavens, before the water, before the earth, before the hearths, before the trees, before the fire [$1$], Ormuzd’s son, before the pure people, before the Devs [demons], before the entire existing world, before all that is good, all pure seeds made by Ormuzd.’ Like the primal lights, it is ‘existing for itself, independently created’ and has, like Ormuzd, a spirit and a light-radiating body.” Surely this idea, considering the Avesta as a religion of light (fire cult, etc.) is “wondrous” and “strange” enough, as E. Röth writes. But if we can grasp the real depth of this “word” as a concept central to akroasis, then we know that the “sound of the world” is expressed in this *acousticon,* as in all ancient religions and mythologies. Likewise, the Biblical “word of God” must also be understood not literally, but in the sense of a pervading akroasis.

**India**

In the Indian esoteric doctrine, the Upanishads, and related writings, there is a metaphysical *acousticon* related to the Persian “*honover*”: the holy syllable “*Om*.” Here Prajapati, creator-god of the Brahmanas, instructs the other gods regarding Atman and the

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Om-sound: 17 “The gods spoke to Prajapati: Instruct us, O exalted one, about this Atman as the Om-sound! [Prajapati answers:] This universe never even exists, only the Atman resting in its own majesty, unlimited, unique, self-observing, self-illuminating. 18 You yourselves are it [Atman], I say. If you saw it, you would not recognize the Atman, because it is the self, not the other. The Atman is without worldly adherence. So you are it yourselves, and the light with which you illuminate is your own ... Thus although you do not see the Atman, you should observe it [i.e. hear inwardly] through the word Om. This is the truth, the Atman, the Brahman, because the Brahman is the Atman. Yes, it is not to be doubted: Om is the reality; it is what the sages see. Yes, this toneless, feelingless, formless, etc. ... is what the Upanishads teach as nobly illuminating, glowing in unity, nobly enlightening this whole world, timeless, see, I am it, and it is I!” And at another passage (op. cit., fol. 226) it reads:

“Know the holy call [Om] as God, Enthroned in all hearts; The wise one, who knows the Om-sound As all-pervading, will not be sad. Of infinite divisions and undivided, It is the blissful repose of duality; He who knows the Om-sound as such Is a Muni [silent observer]; and no other.”

It is also highly remarkable that here, in a clearly optical context of observing, self-illuminating, glowing, looking, the acousticon of the Om-sound suddenly appears as something that bypasses all other discursive and meditative means of perception as a direct way to the Atman (Brahman), and indeed is explained simply as “reality.” In akróasis, however, we understand this holy syllable Om (actually AUM) as the highest concentration and abstraction of spoken enunciation; in murmuring it, he who prays and meditates senses the sound of the world, just as the Parsee does in the calling and honoring of the “creator word.”

Egypt

In Egyptian mythology, the first creator Kneph—the original, immortal god, the spiritual principle corresponding to the Greek Zeus, according to Plutarch 19—breathes the cosmic egg from his mouth, from which Ptah, the second creator, emerges: the orderer, the artful. 20 “He [Ptah] created all gods, Atum, and his divinity—truly, every divine word emerges from the thought of the heart and the mandate of the tongue ... He
became the tongue, and he became the heart as part of Atum.” The highest spiritual principle, Kneph, breathes the cosmic egg from his mouth; Ptah, the demiurge, emerges from it, the actual former and arranger whose tongue speaks the divine word; and thus the world is first articulated!

The akróatic element is present to a far wider degree in the legend of Memnon. Admittedly, it overlaps strongly with Greek mythology; the Egyptian mythological sources are sparse here, but are concentrated in the Colossi of Memnon, still surviving, around which grew the well-known legends of a mysterious connection between tone and light. This is inferred more precisely from Greek sources, which refer specifically to Egyptian origins. All of the Near East had so-called Memnonia—Memnon shrines. Of two it is reported: “And in Meroë and Memphis, the Egyptians and Ethiopians make sacrifices to him (Memnon) when the sun sends forth its first rays, when the statue lets a voice sound to greet its worshippers.” Today in Thebes, the so-called “Columns of Memnon,” the two weathered colossi of Amenhotep III (1400 B.C.), still guard his mortuary temple (now entirely vanished), one of the greatest and noblest works of art ever created in Egypt. They were originally over 20 meters high and (as shown by the graffiti on their bases) were visited around the time of Christ by many Greek and Roman travelers who wanted to hear the wonderful voice, which one of these colossi in particular gave forth every morning at sunrise. Physically, this is explained by the fact that the monoliths, made of a hard conglomerate of pebbles, acquired cracks through sudden changes in temperature, and this gave rise to a sound—a phenomenon that was lost through later restoration.

The spiritual akróatic content of the Memnon legend is more important for us than this deliberate or fortuitous sensory acousticon of a monument. The elements of this myth are light and color, tone and song, water-stream and time-flow, auspicy and plumage, celebration of joy and sorrow, and tombs built on the banks of the rivers. All these elements are harmonic through and through. Light and color blend into a unified concept in the “harmony of the spheres”; tone and song are added to this when the priests sing of the planetary gods, and Memnon, the spirit of light, is greeted with psalms at sunrise. Water-stream and time-flow refer to the eternal melody of events; in auspicy and plumage we remember the beating of the wings of the singing angels in the Zohar, the personification of the toning spheres through the Sirens, the mythos of the singing swan; the expressive basis of the celebration of joy and sorrow lies in the two prototypes of major and minor, whose chords could be played on any ancient Egyptian harp, and the tombs on the banks of the rivers indicate a connection between the Memnon legend and the flowing of rhythmical waves. All these typical harmonic indicators gather in the rich mythology of Memnon like points on the circumference around the center, the form of Memnon himself. “And as Titan rose up, forging through the ether with his white horses, and as he reached his eventide goal of the Hours, Memnon, touched by the rays, opened his clear-toning voice”—thus wrote a poet of his impression of image and legend in the hard stone of the Memnon column.

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22 I infer the following mainly from Creutzer, op. cit., I (1819), p. 450 ff., where the ancient references and later writings on Memnon are named.
China

In the 3rd century B.C., a wealthy Chinese businessman and patron called Lü Buwei commissioned from savants an encyclopedia of the knowledge of his time: *Spring and Autumn of Lü Buwei.*23 In this oldest extant Chinese work, which contains a music theory strongly pervaded by number-harmonic elements, it reads: “The origins of music go a long way back. Music emerges from measure and is rooted in the great One. The great One generates the two poles [\(\frac{1}{n} \leftarrow \frac{1}{1} \rightarrow \frac{n}{1}\)]; the two poles generate the power of darkness and light. The power of the dark and the light changes; one rises up high, the other sinks down low; they unite and form bodies, surging and undulating. If they are separated, they unite again; if they are united, they separate again. That is the eternal progression of the heavens. Heaven and earth are held in a cycle ... the origin of all beings is the great One; they build and perfect themselves through the duality of darkness and light. As soon as the seeds begin to sprout, they develop into a form. The bodily form is within the world of space, and all spatial things have a sound. Harmony emerges from their concord. Harmony and concord are the roots from which the music appeared which was written down by the ancient kings. When the world is at peace, when all things are at rest, all following their superiors in their changes, then music will perfect itself. Perfect music has its effects. When desires and passions do not follow false paths, then music is perfected. Perfect music has its origins. It emerges from equilibrium. Equilibrium emerges from the right, the right emerges from the meaning of the universe (Tao). Thus one can only talk about music with someone who has known the meaning of the universe. True, fallen nations and people ripe for decline do not dispense with music, but their music is not serene ... great music is something in which prince and official, father and son, old and young, delight. Joy comes from inner equilibrium; inner equilibrium comes from meaning (Tao). What one calls ‘meaning’ (Tao) is something one looks at without seeing it, listens to without hearing it; one cannot perceive it physically. Whoever sees the incommunicable, hears the inaudible, knows the form of the formless, he approaches true knowledge.” In the speeches and parables of the Taoists Chuang Tzu and Lie Zi,24 there are wonderful allegories and myths about the universal meaning of “music,” which in the sense of akróasis are some of the deepest and most beautiful writings about this art—and no less than two and a half millennia ago!

Polynesia

Our short summary of non-European peoples and their attitude toward the acoustic and tonal in a broad sense would be incomplete were we not to consider a race whose entire feeling and thought is directly pervaded by the akróatic way of thinking: the Polynesians. We have E. Reche’s book, *Tangaloa,*25 to thank for an elucidation of this. Reche, apparently a Marine officer, was able to study the thoughts and psyches of the natives at a time when the plague of European colonization had not yet destroyed everything. The entire psychic life of these people is based on two concepts of image and hearing: “Moana,” the blue without surface, the infinitude without reality, the sea—and “Langi,” singing, creation, the ungraspable stream of eternity. Reche writes: “But is there then a seeing, which is nothing other than time? His [the ‘Tangata’s’] color-eye leaves

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23 Tr. by R. Wilhelm, Jena Diederichs 1928—I quote from pp. 56-57.
24 Tr. by R. Wilhelm, loc. cit.
25 *Tangaloa, ein Beitrag zur geistigen Kultur der Polynesier.* Munich: Oldenbourg-Verlag, 1926.
him here, he turns to the ear—\textit{talinga} (the answering, that which answers to the vibration of the world). There the waves roar, the winds sigh, the storm sings its wild song, and then again in the later silence of the sea, the entire world is silent around him ... Music is the world—it is singing—\textit{langi}—singing, creation, cosmos. There he has the word. The all, the heavens are \textit{langi} and the earth is \textit{laloangi}, the singing below ... but then does the whole world sing, do all things sing? Is the world also silent? Is there a song to be heard, then, in the stillness of the sea and the silence of the forest? ‘Yes,’ says the Tangata, ‘every silence also has its world of tones—but you cannot listen in casually (\textit{fa alongo} = to hear, literally: to make an answer), you must listen keenly with your innermost ear’ (\textit{fa alolongo} = doubled hearing = silence). ‘Then, Tangata,’ I say, ‘sing me a song in harmony with the tones that you take from the foaming of the waves, the thunder of the surf, the rustling of the leaves—but also sing me a song on the accompanying harp of silence! Then I will know whether you really hear something.’ And a flower-decked host of girls stand on the beach before the fuming surf of the lagoon reef, and I ask them, who are always happy to sing, to sing me a song. The song begins—every throat instantly has exactly the same tone. Where did they find it, where did they grasp the beat? And how wonderful this song is! What is its charm? I still feel it now: It is the harmony of the environment, the voice of the surf, over which the tones of the song glide. And I wander further along the shore, and again I meet a group of Samoan girls. ‘E fua, langi ia le pese lelei o le na ou fa alongo anamuna!’ (Hey! Flowers! [young girls are addressed thus] Sing me the most beautiful song that I have ever heard) I call to them. They all laugh, and one walks forward, shakes her flower-bedecked head and says: ‘E lemafafali i matou’ (we can’t do that). And now I learn that they all know the song very well, but do not want to sing it at this place, no, they claim, they can’t sing it. And finally I find out that at this point on the coast the surf roars differently and crashes upon the reef with different intervals. The accompaniment is not in tune with the song—and disharmony is a moral offense ... and love? When the hearts of a boy and girl find each other, they both know it well, but the boy may not ask. One day the girl says to him, at a holy hour: ‘Ua se langi i loto’ (there is a song in me). Then he knows that he is the song in her heart.”

II.

\textbf{Orpheus}

One of the portals through which the akróatic way of thinking entered European culture—if we do not assume an autochthonous emergence—is the form and myth of Orpheus. According to Greek legend, Orpheus, the son of Apollo and the Muse Calliope, could tame the wildest animals and even affect trees and stones with the power of his singing and playing. After his beloved wife Eurydice died, he descended to the underworld and charmed its dark ruler with his music. Hades gave Eurydice back to him, on condition that Orpheus would not look back until they had both reentered the upper world. But Orpheus disobeyed, and lost his wife forever. Later, putting himself in opposition to the wild orgiastic cult of Dionysus, he was torn apart by enraged Maenads. This legend reveals deep insight: the bearer of measure and harmony, who charms the world with song and tone, meets his end through unfettered chthonic forces. The legend

\footnote{26 Op. cit., pp. 33-35.}
also tells that Orpheus accompanied the Argonauts on their voyage. In a poem, *Orpheus the Argonaut*, appearing later but faithfully preserving ancient traditions, we find the lovely passage:

“But when I, like those others, took up the lyre,
From my throat then melodious song came forth.
The dark song first, about the early chaos
Lost in natures, closed in by bounding heaven;
The wide world’s birth, the deepness of the sea;
The highest, wisest, self-perfecting Eros,
How what he generates then separates;
And Chronos the destroyer, thundering Zeus
Who gained the power of immortal gods.
Then of the birth of younger gods I sang;
Then Brimós, the giants, and Bacchus’ gruesome deeds;
Of dynasties of powerless men destroyed
I told; through narrow crevices my voice rang,
As the hollow lyre sweetly whispered.
The song flew to mountain peaks, and wooded valleys
Of Pelion, and through the high oak branches,
And oaks uprooted marched for the cave’s mouth,
Where the melody cracked rocks, and drove beasts wild,
Remaining shyly charmed before the cavern;
And birds of prey circled Cheiron’s horse stalls
With neglectful wings, forgetting their own nests.”

This is the legendary Orpheus. Much more important, however, is Orphism as a mythos and religious disposition. The myth of the cosmic egg mentioned above plays an important role in the cosmogony of Orpheus. Both in this and in many other myths of Orphic cosmogony, there are close connections to concrete harmonic theorems; and it is assumed that shortly after the influx of Orphic ideas into Greek culture, Pythagoras and his followers adhered very strongly to Orphism. Indeed, most traditional “Orphica,” especially the fragments of the great didactic poem, the “Holy Legend,” are attributed to Pythagoras or his school, though they contain many ancient elements from long before Pythagoras (stanzas from this follow directly).

The Orphic sects, especially in Attica and lower Italy, were fundamentally opposed to the pleasure-loving Greek culture. They practiced abstemiousness in various ways, and taught that there was a world of evil beside a world of good, but that after many rebirths, the human soul would finally purify itself to enlightened immortality. These concepts of an abysmal entanglement in earthly things, and the immortal soul, make Orphism the complete opposite of the Homeric circle of ideas.

27 I quote the following from Voss’s translation Hesiods Werke und Orpheus der Argonaut, Heidelberg 1806, p. 274 ff.
28 See footnote 20 above.
29 See §48.4 and §54.7 of this book.
I will now give a few examples from Orphic tradition, collected and translated with great diligence and effort by Eduard Röth. Röth gave the fragments the title *Heilige Sage* (“Orpheus, as he sang the true Holy Legend—ιερός λόγος,” wrote Clement of Alexandria in *Protreptic* Ch. VII, in the course of a longer quotation); he comments on them extensively, and holds the opinion that the poem of Pythagoras was based on Egyptian sources:

“Youths, listen in awe to all that follows.  
I shall now sing to the sanctified.  
Close the doors to the profane!  
Hear us, exalted number,  
Who begets gods and men!  
Son of Leto, O Lord, whose rays reach strong and far,  
All-seeing sentinel, ruling gods and men,  
Helios, gliding exalted on golden wings:  
I heard thy proclamation descending from heaven,  
And I heard thy utterance,  
Of this I call thee, Lord, to witness!

There is one power, one God, great origin of all;  
He is One, his own source.  
From the One comes all that is created.  
Therein he appears;  
For there is no mortals strong enough  
To look upon him;  
In darkness he is hidden  
And we mortals have merely foolish mortal eyes,  
Too weak to see him,  
The God who governs all.  
For on the high vaults of heaven he has set  
His golden throne  
And the earth lies at his feet.

Unerring and exalted spirit, the everlasting ether.  
Ether and the gaping void, on all sides infinite,  
Through all of which he hears and understands;  
Because there is no speech, there is no tone,  
No noise, there is no whisper even,  
That escapes the ears of Zeus.

He [Zeus] surrounds the Universe with unending ether  
And places the heavens in its midst;  
In it the mighty Earth  
With the sea and all the wonders  
That the heavens enclose;

Thus he surrounds the All with an indissoluble bond
And he ordains the golden chain of ether;
So that everything exists as one,
And yet separate.
The great and sacred number [Tetraktys] goes
Out from the depths of unity, the unadulterated,
Until it arrives at the sacred four.”

The actual harmonic content of this lavishly poetic Orphic fragment, of which only the beginning is quoted here, will become clear to the reader in the course of this book—for example, the emphasis on the “One who is hidden in darkness” (0/0 or 1/1) as the “mighty origin of the universe”; the “great and sacred number,” the Tetraktys 6-8-9-12, in which the three proportions (arithmetic, harmonic, and geometric) are concealed, and from which (from the Pythagorean viewpoint) the construction of the world and its forms emerge; and the “golden chain,” which we identify with the “generator-tone line”: “so that everything exists as one, and yet separate.” I thought it necessary to offer a sample of this controversial Orphica, in order to give the reader an idea of the peculiarly archaic timbre and impressive formation of this poetry. In conclusion, we quote the following passage from the same Orphic fragments, as applicable in its deep pessimism to our times as to 2,500 years ago:

“Truly, there are races of men loaded with curses,
Burdens of the earth, embodied specters, in utter blindness
Living, and just as incapable of seeing evil
Approaching, and of repelling misfortune in a timely manner,
As of turning the existing good toward themselves and correctly
Using it; relying on good luck, unconscious and without foresight.”

Here, we can marvel all the more at Orphism, still striving for the good, for salvation and immortality; and also at the adoption of the Orphic concept of the cosmos by the Pythagoreans, who supported the entire theory “scientifically” by means of tone and number, building it into a unified doctrine.

We shall discuss Pythagoras in section III, as far as the space of this Introduction permits. For now, we shall seek further akróatica within Greek culture.

The Muses
Next, we find the nine Muses. They are the sisters of Apollo, nine beautiful maidens of whom little more is known than that they change everything they know into music. Thus they are a kind of sensory abstract embodiment of the “sound of the world.” André Bonnard described them, faithfully to the sources, with incomparable charm: “Clio sings of the past, of life, of the glory of cities and peoples that no longer exist. She is history. Euterpe, the double flute at her lips, charms shepherds, flocks, and wild beasts.

32 Recently, for example, the article “Orpheus” in Religion in Geschichte und Gegenwart, 2nd ed., 1930, vol. 4, one once again inclines us to locate the center of Orphic theogony in the 6th and 7th centuries B.C.
33 From Röth, op. cit., p. 685.
34 In Die Götter Griechenlands, Büchergilde Zürich 1946, pp. 136-137.
She roves about with satyrs and sometimes leaves Apollo to follow Bacchus and the
Maenads. Polyhymnia knows the oldest hymns, sung at the altars to honor the gods and
memorized by the priests. She also knows the elegies taught to youths, praising past
heroes. Melpomene has a solemn countenance. She tells of sorrow and death, the fate
assigned to guilty and innocent alike. But from all the misery that affects mankind, she
produces a noble song in the theater, to which people listen enchanted. She is the
liberating beauty of poetry. She is the desire for the tragic. Terpsichore has the dance-
devil in her belly. Erato knows the joys, games, and pain of the living. Calliope adjusts
her steps to the rhythm of human speech. She walks in step with Homer’s verses, beats
the rhythm to the sentences of Demosthenes. Harmony blooms on her lips. Urania has
eyes like the sky and stars. She sings the paths of the constellations. She is the harmony
of the spheres. Thalia, the last, is the most beautiful and the most mischievous; she is so
amusing that one must laugh for sheer delight. The wine of banquets goes to her head.
She sings mocking songs about important personages and takes various liberties on the
comic stage against established order, decorum, and state.”

Interestingly, the passionate Virgil does not call on these sound-skilled beings for
help with poetry, but instead to impart knowledge of cosmic laws:

“But receive me, friendly ones; I bear the sign
Of your holy service, filled with fervent love,
Muses, teach me of the planets’ paths,
Of eclipses, and the changing labors of the moon,
And why the earth quakes, and the open sea
Flows over shores and then sinks back again,
Or why the sun sinks fast on winter’s days
Into the ocean, which holds back hesitant night.
But should a cold, hard nature of the heart
Never grant me such secrets of sense and knowledge,
In your woods and pastures, traversed by clear streams,
I will gladly live, happy and inglorious! ...
Happy is he who can know the world’s origins. ...”35

The Muses are the sisters of Apollo, the god of music and the arts, of measure and
harmony. Around Apollo and the Muses another series of mythological figures is
grouped, which in fact can only be sensibly categorized within the framework of
universal akróasis: the Sirens, the singing swan, the winged beings (angels), and the
dolphin.

Sirens

Originally, the Sirens were not the temptresses we know from the Odyssey. Maidens of wondrous beauty, gifted with great voices, they were cursed by Ceres
because as playmates of Persephone, they had allowed her to be abducted without
hurrying to her aid. Now they lie in wait on beaches for passing ships, to deceive and
destroy them. Only Orpheus the Argonaut was able to redeem them; his song charmed
them so that they jumped into the waters and turned to stones:

35 Virgil, Georgics, I, tr. by R.A. Schröder.
“And so I played my tune; and from the snowy rocks
The Sirens appeared stunned, forgetting their own song.
Some threw their flutes away, and others tossed their lyres;
They then sighed heavily; because their grim fate came,
And brought sure death to them; and from the jagged cliff
They leapt into the depths of the salt-eddying sea.
And there in fearful form, they now appeared as rocks.”

I interpret this myth as the struggle between the divine world of sound (Orpheus) and the sensory earthly world (Sirens), and as the conquering of the latter by the former.

**The Singing Swan**

For Hómēr, the Sirens were beautifully singing birds with the faces and upper bodies of women. The element of feathers and wings reminds us of the actual “harmonic” magic bird—the singing swan—and indeed of the entire mythology of the winged gods, who accompany their wing-beats with singing and hymns. Swans are consecrated to Apollo. In *Birds*, Aristophanes writes:

“And swans voiced
Songs together and rejoiced loudly,
Beating with their wings to praise Apollo,
Resting on the banks, all along the flowing Hebrós;
And their song floated up to the ether above:
Beasts of the forest listened and halted,
Mirror-bright the waves rested flattened
All of Olympus resounded,
Astonishment gripped the throne
The Gods, the Graces, and the Muses
Harmonized in jubilation!”

The remarkable “singing” of swans is, of course, legitimized through their being Apollo’s birds. But this interpretation appears to me secondary compared to a much more deeply rooted harmonic interpretation, referring to the Orphic world-egg³⁸ and the birds that hatch it in various mythologies (phoenix, roc, griffin, etc.). The winged Pegasus, on which Apollo, god of the musical arts, flies into the sky, also belongs in this category, as does the strange legend of the music-loving dolphin.

**Dolphins**

“The quickly hurrying sea-dogs, tone-loving dolphins...”³⁹ Hölderlin⁴⁰ translates a verse from Pindar about the dolphin, “who in the waveless depths of the sea, moved by

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³⁸ See footnote 20 above.
³⁹ Arion’s hymn to Poseidon, preserved by Aelian: *De Natura Animalium*, pp. 12, 45.
⁴⁰ Insel-Ausgabe, p. 977.
flutes,\textsuperscript{41} adores song,” and makes the following insightful comment: “The song of nature, in the weather of the Muses, when the clouds hang like flocks over the blossoms, and over the melting of golden flowers. At this time every being gives forth its tone, its devotion, the way by which one holds itself together. Only the difference of species, then, makes the separation in nature, so that song and pure voice is all the more the accent of necessity or, on the other hand, speech. It is the waveless sea where the moving fish feel the pipe of Triton, the echo of growth in the coarse water-plants.”

\textbf{The Harmony of the Spheres}

The concept and worldview of the \textit{harmony of the spheres} is common to almost all classical and pre-classical peoples. But in it we find not only the “cosmic” content of \textit{akróasis}, expressed in myths and legends and interwoven in numerous forms, but even more, we find that specialized harmonic research since the earliest antiquity repeatedly sought concrete connections between the stars and the laws of tones, until Kepler and modern harmonics proved these connections. I will give a few examples so that a few of these mythological forms of the celestial world can be “heard.” Lucian writes: “Thus the lyre served Orpheus, its inventor, as the noblest instrument of his clandestine religion; but this lyre, which had seven strings, was to him a symbol indicating the harmonies of the planets. It was with this secret science that he charmed and mastered all: his concern was not the lyre he had made himself, nor what one generally thinks of as music.”\textsuperscript{42} In the Orphic hymns, Helios Apollo is entreated: “You who with golden lyre guide the harmonic progression of all”; Pan is addressed as “under the stars playing / the harmonies of the world on a jesting flute”; and Apollo is sung to thus: “With your bright playing you guide / the whole pole; now changing to the lowest string / now to the highest, and now, in the Dorian mode / completely harmonizing the pole”—the celestial pole, of course.\textsuperscript{43} Franz Cumont\textsuperscript{44} found depictions of the Muses on seven Roman sarcophagi from the 1\textsuperscript{st} to the 4\textsuperscript{th} centuries, and comments on them as follows: “The sister goddesses who oversee the harmony of the spheres awaken in people’s hearts, through music, the passionate longing for those divine harmonies and the yearning toward the heavens. At the same time the daughters of Mnemosyne recall to consciousness the memory of the truths she knew in an earlier life. They share their wisdom with her, the pledge of immortality. Thanks to them, thought rises up to the ether, is initiated into the secrets of nature, and reaches the circle of the choir of the stars. It is relieved of the worries of this world, is transported to the world of ideas and of beauty, and cleansed of material passions. And after death the heavenly maidens summon the soul they have consecrated in their service to the celestial sphere, and allow it to take part in the blissful life of the immortals.” Of the eight heavenly spheres, Plato\textsuperscript{45} writes that on each circle sits “a siren, who goes round with them, hymning a single tone or note. The eight together form one harmony; and round about, at equal intervals, there is another band, three in number, each sitting upon her throne: these are the Fates, daughters of Necessity, who are clothed in white robes.

\textsuperscript{41} Flöten = flutes, not Fluten (=floods, streams) as was erroneously printed in the source.


\textsuperscript{43} \textit{Die Hymnen des Orpheus}, tr. by Dietsch, 1822, pp. 23, 33, 86-87.

\textsuperscript{44} In his last master-work, \textit{Recherches sur le symbolisme funéraire des romains}, Paris 1942—quoted from the translation by E.R. Curtius in \textit{europ. Literatur und lateinisches Mittelalter}, Bern 1948, p. 239.

\textsuperscript{45} \textit{Republic} X, 617, tr. by Benjamin Jowett, New York: P.F. Collier, 1901.
and have chaplets upon their heads, Lachesis and Clotho and Atropos, who accompany with their voices the harmony of the sirens—Lachesis singing of the past, Clotho of the present, Atropos of the future.’’

The singing swan also reaches the stars. Virgil⁴⁶ tells of the legend:

“For it is told that Cygnus [the swan], mourning for beloved Phaeton, Under budding poplar branches and the shadows of the sisters, As he sought to ease the sorrow of his love by singing songs, Old age hastened in upon him, silver-gray with tender down, And flying up from earth, he pursued the stars with chanting.”

There are many more examples of ancient poetry and speculation relating to the harmony of the spheres. We will mention only a few others.

Pindar, a contemporary of Pythagoras (6th century B.C.), sang:

“Golden lyre,
Apollo plays you above in heaven,
and you rule the dance and song
of the violet-ringlet Muses.
Below on Earth the choirmasters
hear these sounds,
and the singers follow the directions
when you strike up the prelude
giving beat and tone to the song.”

Willamowitz-Moellendorf, from whom this translation is quoted,⁴⁷ recognizes in this poem a poetic veiling of the harmony of the spheres. The dance, so closely bound up with music for the Greeks, is a symbol of the heavenly dance of the stars: “For what is this round dance of the stars, this regular interwoven movement of the planets in relation to the fixed stars, and the rhythmical unification and beautiful harmony of their movements, if not proof of a great primal dance?” writes Lucian.⁴⁸ Cicero⁴⁹ moves entirely in the akróatic realm of ideas when he writes of soul, tone, and cosmos: “Indeed, Socrates asks Xenophon from whence we have conceived the soul, if there is none in the world. And I ask, whence speech, whence the regular harmony of speech, whence song? We would have to assume that the sun converses with the moon when they approach each other, or that the world sings in harmony, as Pythagoras says. These are works of nature, Balbus, not of an artificially intrusive nature, as Zeno expresses it, but one that stimulates and drives everything through its own motions and changes.”

We will remark only in passing that the ancients closely studied the analogies of the elements of speech, of vowels and consonants to the tones of the planets and celestial spheres, through which they regained a connection to the most ancient cosmic meaning of

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⁴⁷ Die Harmonie der Sphären, Berlin 1915, p. 130.
⁴⁸ Von der Tanzkunst, op. cit., vol. 4, pp. 89-90.
⁴⁹ De Natura Deorum, tr. by Kühner 1862, Book 3, Ch. 11.
sound and of the word itself; we will return to this later. But the reader will agree with me that a name, indeed an entire realm of concepts, can now no longer be avoided: Pythagoras.

III.

Pythagoras

Pythagoras of Samos lived and taught in the 6th century B.C.—in the same hundred-year period as Buddha, Lao Tzu, Confucius, and Zarathustra. Like his contemporaries, he sought in the spiritual reformatory character of his discipline to preserve the achievements of past times amidst spiritual and political deterioration; but also to recast them for future civilizations in new, nobler metals. This was a turning point of most profound significance for the history of humanity!

Despite the nearly endless literature on Pythagoras, the historical view of the man himself today fluctuates between two extremes. One side entirely denies his historical existence and considers all of Pythagoreanism to have appeared only with Plato and his school. The other side believes that the many legacies of the Neopythagoreans and the Neoplatonists, with their biographies of Pythagoras—except for obvious fables—are to be taken more or less in earnest, since that strong element, oral tradition, confirmed in hundreds of ancient sources, is starting to gain new respect. The purely philological evaluation of these relics, often only written down centuries later, their careless dismissal as “false” or at best as “pseudo-” something, seems, unless everything is a lie, to be distasteful blasphemy; anyone who has eyes to see and ears to hear knows that despite all textual criticism, they contain valuable intellectual material. The final word here falls not to philology and the “microscopic precision” of textual criticism, but rather to the spirit of these relics themselves—at least for those who follow their traces and understand them as they were intended. To give an example, there is one passage—hitherto completely overlooked by the literature on Pythagoras—from the much-reviled “fantasist” Iamblichus, which is far more important for the elucidation of the technique of Pythagorean study than the few approved “true” fragments of Pythagoras left for us by textual criticism.

Pherecydes

Pythagoras was supposedly a student of Anaximander, and of Pherecydes, who incidentally anticipated Schopenhauer’s idea of space-time causality in the trio Chthon (earth, space), Kronos (time) and Ether-Zeus (the causal, formative principle). Pythagoras

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50 See, among others, Franz Dornseiff: Das Alphabet in Mystik und Magie, 1922, p. 82 ff.
51 As a model: Erich Frank: Plato und die sogenannten Pythagoreer, Halle 1923.
53 See §20a of this book.
54 Another example is the so-called “Dionysius the Pseudo-Areopagite” (500 A.D.), whose writings were more important and influential for medieval mysticism and art (sculpture, painting, symbolism) than Plato, Aristotle, and all the Classics combined. As far as I know, there is as yet no critically reliable text edition of this author who was so important for all medieval art and thought. I mention this example because the only German translation to date, by Engelhardt (Sulzbach 1825, 2 vols.), includes the Hymns of Synesios, just as interesting for us harmonists as they are poetically beautiful.
also learned the wisdom of the Egyptian priests, fostered mathematical and philosophical studies, and finally founded an ethical-religious confederacy in Kroton and lower Italy, against which the democratic majority rose up, so that he emigrated to Metapontion and died there around 500 B.C.

This is the ostensibly “true” account. However, if one puts a little more trust and faith in the traditional accounts of the ancients than modern hypercritics do—and in my opinion there is not the slightest reason to reject a great number of well-authenticated accounts of his life merely because they are “improbable” or can only be found in the works of later authors—then the life of Pythagoras grows into a whole book. But this book has not yet been written.

For us, the matter at hand is not his life—however welcome a new version of it would be—but his teachings. Scholars only agree on a few points regarding what Pythagoras taught, since unlike Plato and Aristotle, he left none of his own works behind. It is agreed that he believed in number as the essence of things; that he taught a religion of the transmigration of souls; that he taught the concept of the cosmos, i.e. the harmonic order of the universe and the harmony of the spheres; that he and his students knew of the heliocentric system in some form (“central fire”); and that within his order he imposed certain peculiar rules of purity and conduct.

Even if the accounts we have of this teaching were yet more abbreviated, they would probably still give enough information to throw some light here and there into the various chambers of this edifice of wisdom. But they would tell us nothing about the architectonics, about the structure of the edifice itself; as, indeed, the literature on Pythagoras amply demonstrates. It is a fundamental error of modern science, especially the philological-critical disciplines, to believe that syntheses can be gained from analyses. Analyses, however cleanly and thoroughly they are made, only ever yield sums, never syntheses. A synthesis is a whole; it can never be achieved through a summation of single facts, but only through the establishment of an idea! Ideas do not come from below, like molehills; they come from above. Every idea partakes in the creative, the divine, as long as it is creative and not destructive. From the “brainwave” of the scientist and artist to universal philosophical, artistic, and political conceptions, every idea is an ever-renewing wonder—and a mystery.

What, then, was the fundamental idea behind Pythagoras and Pythagoreanism?

**Harmony and Number**

*The whole universe is harmony and number.*

This: harmony and number, and not number alone, was decisive for Pythagoreanism. So many passages attest to this assimilation of the concepts of harmony and number that one must wonder why the one-sided and erroneous thesis has been presented again and again, right up to modern times: that for the Pythagoreans,

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56 Philolaus writes explicitly that all perceivable things are *number*, but that the world order (cosmos), united from the limiting and unlimited, could not exist if the *harmony* had not come to it. “The Nature of *number and harmony* admits nothing untrue.” See Diels: *Fragmente der Vorsokratiker* (Philolaus), 3rd ed., vol. 1, 1912, p. 309 ff.

57 Aristotle would have made this error in his account of Pythagoreanism, had he not corrected it in the above declaration!
everything was “only number.” But one must be aware that the Greek word *harmonia*
was synonymous with *octave*, i.e. the musical interval that contains all tones, repeating
again and again from the low to the high, through which music is made. “Harmony”
accordingly means both the universal concept of the harmonic and, in an entirely concrete
sense, the multitude of tones, the tone-values, i.e. the animated world.58 Thus at the
center of the circle of Pythagorean knowledge is the concept of *harmony*, i.e. the norm of
the toning, inner, psychic world, and the concept of *number*, i.e. the symbol for the
regular ordering of the outer world that can be grasped by means of concepts. This
concept of the *tone-number* is the basis not only for Pythagoreanism and classical and
pre-classical harmonics, but also for modern harmonics—as I have developed it in my
previous works and have presented it summarily in the following textbook. From the
concept of tone-number, then, the Pythagoreans advanced to that of the *cosmos*:
“Pythagoras first named the world *cosmos* because of the order and harmony in it.”59

*The Monochord*

We must further discuss this remarkable concept of tone-number, which
coordinates perception and thought; because with its assertion alone, neither
Pythagoreanism nor modern harmonics could have come into being. This could only
happen through a certain development of the tone-number concept, which the
Pythagoreans performed on the basis of their experiments with the *monochord* (= one-
string). “Pythagoras, as he readied himself to depart from this life, entreated his youths to
play the monochord. With this he wanted to make it apparent that the apex of perfection
in music can be better attained purely spiritually through numbers than sensorily through
hearing.”60 Whenever the ancients elicited interval numbers (= tone-numbers), they
spoke of “strings,” i.e. string lengths, and the monochord put these most conveniently at
their disposal, since one can easily note the relevant ratio numbers (always in terms of the
whole string = 1) on the board under the string, place a bridge there, then strike and hear
the two string segments. The passage from Aristides Quintilianus quoted above is at the
beginning of his instructions for determining the tone-number-ratios on the monochord (=
canon); this passage can be considered authentic, because Aristides, although he lived
around 300 A.D., was a true protector of the Pythagorean tradition. There is a small
masterpiece by the famous mathematician Euclid (ca. 300 B.C.), *The Division of the
Canon* (canon = monochord); also, the astronomer Claudius Ptolemy (2nd century A.D.)
wrote an extensive work on harmonics, in which the one-stringed monochord is replaced
by one with fifteen strings,61 and the tone-numbers thus found are thoroughly discussed.

58 Proof for this is in the 6th fragment of Philolaus (op. cit., p. 310 ff.), where the “harmony” is defined as
the octave and is divided into the most important intervals, the fifth, fourth, whole-tone, and semitone. The
diatonic scale is derived from this.
60 Aristides Quintilianus: *Von der Musik*, Tr. by R. Schäfke, Berlin 1937, p. 311—here, “purely spiritually
through numbers” means that in contrast with mere playful and sensory tone-perception, a substantially
deeper grasp of “music” is possible through studying and immersing oneself in the laws and norms of tone-
numbers. And “music,” for the Greeks, was not merely one of the many arts—it was the “sound of the
world”!
61 Obviously due to the practical possibility of comparing of intervals and numbers, as with our 13-string
monochord (see §1).
The monochord, then, was the instrument with which the Pythagoreans performed their experiments, just as our modern scientists perform experiments with instruments in their laboratories.

How, then, did they bring order to this whole system of tone-numbers? Because anyone who just tries experimenting on the monochord falls immediately into an almost incomprehensible jumble of numbers and tones. Naturally these can all be strictly legitimized, since they all come from the unit of the string. But what does the system of these tone-numbers itself look like? None of these ratio values \( \frac{x}{y} \), however precise, give any hint of that, as long as one has no definite scheme by which to draw them. Ingenious monochord specialists must soon have ascertained this when they noted the string divisions according to the series progression:

\[
1 \quad \frac{1}{2} \quad \frac{2}{2} \quad \frac{1}{3} \quad \frac{2}{3} \quad \frac{3}{3} \quad \frac{1}{4} \quad \frac{2}{4} \quad \frac{3}{4} \quad \frac{4}{4} \quad \text{etc.}
\]

and came upon the arrangement:

\[
\begin{array}{cccc}
1 & \frac{1}{2} & \frac{1}{3} & \frac{1}{4} \\
\frac{2}{2} & \frac{2}{3} & \frac{2}{4} \\
\frac{3}{3} & \frac{3}{4} \\
\frac{4}{4}
\end{array}
\]

and so on.

**Boethius**

Boethius, the unfortunate philosopher of late antiquity who was murdered in 524 A.D. at the fault of his emperor, Theoderic, left us a *Geometry* that is based specifically upon Pythagorean sources. In it, \(^{62}\) a “Pythagorean table” is mentioned, supposedly used by the Pythagoreans because “they believed that which had been thought through laboriously could be brought more easily to general knowledge, if people could see it in a certain way before their eyes.” There are also reports of a “Diagramma” that they used for the notation of monochord ratios, a type of coordinate system in which the number- and tone-ratios were represented with strokes and geometric operations. Indeed, they finally went over to circular systems, in which the tones were no longer represented by strokes, but by circles and angles. \(^{63}\)

As for the *mensa pythagorica*, the Pythagorean Table, Albert von Thimus has done us the great service—decisive for a secure foundation of both historical Pythagoreanism and modern harmonics—of rediscovering the true form of this diagram on the basis of a passage whose meaning had been previously overlooked, in Iamblichus’s commentary on the smaller arithmetic treatise of Nicomachus. \(^{64}\) I explained the circular systems, angles, etc. of the tones in my previous works. \(^{65}\)

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\(^{63}\) For the relevant passage, see p. 000 of this book, cited more thoroughly with the accompanying diagram.

\(^{64}\) See §20 and especially p. 000 of this book.

\(^{65}\) See §33.
The Lambdoma

The fundamental harmonic diagram, which Thimus called the “Lambdoma” because it is drawn in the shape of a Greek lambda (Λ), and to which I gave the designation “partial-tone coordinates” because it is best for us to notate it in the familiar form of a coordinate grid, is (like all harmonic diagrams) not simply a mathematical-logical scheme that could be drawn with any other symbols. The form of these tone-number groups is also justified optically through the geometric-arithmetical arrangement of their contents, as is shown by the construction of the monochord, on which every tone-value in the diagram can be realized by means of the “equal-tone lines.” In pure numeric terms, this is a division canon that rationally subdivides any linear unit. 66 Regarding the tonal content, these partial-tone coordinates provide, for the first time in the history of acoustics and music theory, a system of tones, which science has lacked before now. Since this system is based on the natural law of the overtone series, and its group-theoretical form also appears to be based in nature in other ways 67—and since, on the other hand, all the tone-values in it correspond to forms present in our psyche, as the “monochord test” 68 demonstrates—this fundamental harmonic diagram contains one of those rare coincidences of the natural and the psychic, of matter and spirit, which promises to impart completely different findings from those of a merely logical (mathematical) formulation, or from a merely psychological analysis of inner forms and experiences.

“Theology in the form of mathematical figures is taught by Plato, the Pythagorean scriptures, and Philolaus,” says Proclus in his Commentary on Euclid. 69 With this we return once again to Pythagoreanism itself. It is my firm belief that the only way to orient oneself in the great maze of Pythagorean traditions and their “authentic” and “inauthentic” theorems is to start with the central idea of Pythagoreanism—namely with the tone-number, and the geometric-tonal configurations developing from it. I made a first attempt at this orientation in my essay on Pythagoras, 70 and even in those initial harmonic analyses showed that many of the previously “obscurest” Pythagorean theorems could be illuminated with comparative ease; indeed, a few previously considered “foreign” and “un-Greek,” such as the doctrine of the transmigration of souls, can be derived directly from the Lambdoma. The reader will find various such analyses mentioned in this book.

Pythagoreanism had an enormous influence in all of antiquity with its double concept of number and harmony. This effect spread both into the most problematic individual phenomena and into the great universal akratic concepts, as we have already learned (the harmony of the spheres, for example). Pythagoras taught 71 in two ways. With one section of his students, the mathematikoi, he approached problems discursively, working through proofs; with the others, the akusmatikoi (= hearers), he taught symbolically by means of concise, easily remembered epigrams (akusmata). Of the many akusmata that remained in circulation throughout antiquity, an especially tenacious one

66 See §21a.
67 E.g. in the growth of crystal surfaces, see §21a.
68 See §20.
70 Abhandlungen zur Ektypik harmonikaler Wertformen, Occidentverlag, Zürich (1938) 1946.
71 From Porphyry: de vita Pythagorae sect. 36.
has been preserved in different variations.\footnote{According to Proclus, Aelian, Theodotus, Iamblichus. H. Steinthal has devoted a special excursion to this \textit{akusma} in his \textit{Geschichte der Sprachwissenschaft bei den Griechen und Römern}, 2nd ed., 1890, part 1, p. 153 ff.} Reduced to a common denominator, its translation reads: “\textit{Number is the wisest of things, and the name of things the next wisest.}”

\textbf{Philolaus}

It is no wonder that the concern here is a typically akróatic pronunciation, emerging from the background of the tone-number; and this is even less surprising when we think of the close connection to number and “harmony.” For further proof of this connection, we introduce a passage from the Pythagorean Philolaus,\footnote{A. Boeckh: \textit{Philolaus}, 1819, p. 140 ff.} which reads:\footnote{Tr. by Steinthal, op. cit., p. 159.}

“For nothing would be knowable to anyone, neither anything in itself nor in its relation to anything else, were it not for number and its being; but now this, in agreement with the psyche, makes the perception of all things knowable and corresponding to one another.”

Here the expression “number, in agreement with the psyche” can only be interpreted via the tone-number; because there is no “agreement” of the psychic with the numeric other than through the acoustic phenomenon, the tone. The connection of “name” to number, i.e. of language to the legitimately harmonic, now saturates all of Greek speech perception and the Greek science of language. Plato, in one of his last dialogues, the \textit{Philebus}, investigates how one reaches a certainty, a form, an articulation, between the “one” and the unending. He uses music as an example, and says that just as music can only exist through certain numerically fixed intervals, and not through the unity and infinitude of the tones, just so must one choose and fix upon certain sounds amongst the infinitely many, otherwise there will be no language. “These two objective examples, intimately connected with each other, are vocal sounds and musical intervals. A well-versed ‘grammarian’ is not someone who knows that ‘tone’ (\textit{phonè}) is a unit and that there is an infinite number of tones, but someone who knows how many tones and what kind of tones lie between the One and the infinite. It is the same with intervals.”\footnote{Julius Stenzel in: \textit{Zahl und Gestalt bei Plato und Aristoteles}, 1924, pp. 13-14—apropos of the Philebus passage.}

In the \textit{Philebus}, Plato defines this harmonic background of language as follows:\footnote{Tr. by Benjamin Jowett.}

“Some god or divine man, who in the Egyptian legend is said to have been Theuth, observing that the human voice [\textit{phone}] was infinite, first distinguished in this infinity a certain number of vowels, and then other letters which had sound [\textit{phonê}], but were not pure vowels [\textit{phthongon}] (i.e., the semivowels); these too exist in a definite number; and lastly, he distinguished a third class (\textit{eidos}) of letters (\textit{grammatôn}) which we now call mutes (\textit{aphona}), without voice and without sound, and divided these, and likewise the two other classes of vowels and semivowels, into the individual sounds, told the number of them, and gave to each and all of them the name of letters (\textit{stoicheion} = element); and observing that none of us could learn any one of them and not learn them all, and in consideration of this common bond which in a manner united them, he assigned to them all a single art, and this he called the art of grammar or letters.” But the ancients
understood, much better than we do today, that this “number” is nothing other than the tone-number; and from it grew a branch of philology that is now lost: acoustic grammar.

Acoustic Grammar

“Studying music led the Pythagoreans to a remarkable involvement with the study of letters, grammar. Quintilianus, Institutio oratorio I, 10, 17 expresses this as follows: Archytas atque Evenus etiam subjectam grammaticen musicae putaverunt, i.e. they counted grammar as music. Pythagoras’s tremendous discovery, that musical pitch depends on the length of the string producing the tone, immediately enchanted his contemporaries, and determined later thought as hardly any other scientific discovery has done. The tones appeared as embodied numbers [string lengths on the monochord!]; the qualitative differences were traced to quantitative differences. With this, the human mind’s search for unity had an abstractable, applicable hen [= one = unit of the monochord string] far better suited to universal harmonics than the concrete world archons of the hylozoists. I can say that everything emerges from water, from the infinite, or from air, but that does not get me much further. However, if I know that all is number [tone-number], and that number is the world principle, I can then construct a system. The deep meaning of music, for example, is that it is number turned into sound. In number, then, a key as found that promised to open all doors. It was the most fundamental thing in the cosmos, perhaps indeed the most real, the symbol of consciousness.”

For the Greeks, the letters were also numbers and tones. The 24 letters of their alphabet were probably used directly to designate the 24 notes of the aulos. There is much literature on the mysterious letter Y (Greek: Ypsilon), going back to the earliest times. It is the “philosophical letter” itself, and Pythagoras is said to have interpreted it as follows: the three arms represent the vowels, the voiced consonants, and the unvoiced consonants. Sometimes the middle bar is extended, so that it becomes the letter Ψ (Greek Ψ = Psi).

There was still a saying in the Middle Ages: ad Pythagorae literae bivium pervenire [to arrive at the parting of the ways of the Pythagorean letter]. This letter is used in many places to symbolize the two directions of virtue and vice. Anyone who has put together and rearranged the basic Pythagorean Table (our “partial-tone coordinates”) in the form of the Greek Lambda (Λ) knows that this is simply the partial-tone diagram, drawn in shorthand, so to speak, even if the traditions tell us nothing about it. A. von Thimus, in the introduction to his Harmonikale Symbolik, collected a great deal of evidence for the intentional veiling and concealment of the Pythagorica, and we already need a central “idea” to lift this veil.

The accents were designated on the basis of Pythagorean traditions. The accent is the “echo of the harmonic voice,” namely threefold: “either tensely climbing, or deeply lowering, or extended in bending.” For the acute accent, the voice climbs no farther

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77 Dornseiff, op. cit., p. 13. The reader will already be convinced from the previous discussion that this is not simply a matter of number, but of tone-number. For an explanation of the evaluation of the Pythagorean discovery of the dependence of pitch on string length—which is surely from a much earlier date and was also known to pre-classical people—see my Hörende Mensch, p. 37 ff., and Akróasis, p. 12 ff.
78 On this and the following, see F. Dornseiff: Das Alphabet in Mystik und Magie, 1922, p. 11 ff.
79 See Dornseiff, op. cit., pp. 24 and 34.
80 See Figures 249, 252, and 254 in this book.
81 Dionysios Thrax, from Steinthal, op. cit., II, 202.
than 3½ tones; for the grave it descends no further than that.\textsuperscript{82} Aristides Quintilianus,\textsuperscript{83} using the Pythagorean sources that were still available to him, broadly and exhaustively discussed the “meter” and “rhythm” in speech and poetry according to Pythagorean principles, which the Church Father Augustine later took up and continued, even more extensively where possible, in his \textit{De musica}.\textsuperscript{84} From here, the door opens to harmonic speculations of all kinds in the Middle Ages.

\textbf{Plato’s and Aristotle’s position on akróasis}

The position on akróasis of the two great ancient philosophers, Plato and Aristotle, is interesting to us. Today it is agreed that for the ancient Greeks, “music” (understanding this concept in its broadest meaning, i.e. “akróasis”), like poetry (which is also perceived through the medium of the ear), was not merely an art, but that they sensed the singing and the order of the cosmos in the phenomenon of tone.\textsuperscript{85} Physiologically, the eye was more spiritual for Plato; for Aristotle, the ear.\textsuperscript{86} Plato\textsuperscript{87} gives the eye the predicate “sun-like,” and speaks\textsuperscript{88} of an “eye of the spirit.” Aristotle\textsuperscript{89} was of the opinion that the ear is the most spiritual organ of the human senses (!). For both however, Plato and Aristotle, the high value of “music” and the musical in educational and ethical terms is self-evident. The two thinkers only differ regarding their physiological priorities in that Aristotle, especially in his \textit{Metaphysics}, argues against the Pythagorean speculations numbers. The examples he gives show clearly, for those who have worked over the actual Pythagorean tone-number system and analyzed its forms, that Aristotle did not know the concrete basis of Pythagorean harmonics, and therefore did not understand many of the traditional Pythagorica. Plato, on the other hand, only objects fundamentally to the “haptification” of those Pythagoreans who treated tone-number like “hair splitting,” and seeks, in the acoustic phenomena in question, an ascent to the spiritual, to the Idea. In the \textit{Philebus}, Plato introduces the arrangement of the sound system in speech with these words: “Some god or divine man observed that the voice [\textit{phonè}] was infinite...” In his later works, he returns openly to Pythagoreanism, presumably as a result of personal contact with Pythagoreans in Sicily and southern Italy. His harmonic derivation of the soul of the world in the \textit{Timaeus} is both famous and infamous. Since Plato was avowedly an initiate (see his Seventh Letter), he gave this derivation only in veiled language. However, for those who know, there is no doubt that the two series given by Plato, 1 2 4 8 and 1 3 9 27, joined in the correct way,\textsuperscript{90} produce what is still the only correct formula for the diatonic scale, and therefore a law on which not only all practical music is based, but also, for the ancients, the music of the cosmos; which is exactly what Plato wished to show. Plato’s thoughts are even closer to Pythagoreanism in his enigmatic posthumous

\begin{itemize}
\item \textsuperscript{82} Ibid., from Dionysios Halic.
\item \textsuperscript{83} \textit{Über die Musik}, tr. by Schäfke, Berlin 1937.
\item \textsuperscript{84} Tr. by Perl, Straßburg 1937.
\item \textsuperscript{86} W. Jäger, op. cit., p. 302.
\item \textsuperscript{87} \textit{Republic} 508 B.
\item \textsuperscript{88} \textit{Symposium} 219 A.
\item \textsuperscript{89} \textit{De sensu} I, 437 a 5.
\item \textsuperscript{90} See p. 000, formula 355 in this book, and p. 000.
\end{itemize}
work, the *Epinomis*. This has long been assumed to be the work of his student Philippos of Opus, but arguments are now being made for its authenticity.\(^{91}\) It is possibly a transcription of one of Plato’s later lectures. “If the *Epinomis* is authentic, then its special significance lies in the fact that it represents Plato’s closest approach to Pythagoreanism.”\(^{92}\) The subject of the *Epinomis* is the question: what must mortal men learn in order to be wise? The individual observations of this work continually lead back to number. Everything unintelligent, incausal, unordered, non-rhythmical, and inharmonic is lacking in number-ratio. Number is the gift of the divine universe. The harmonic idea of unity rules the forms of the upper and the lower world, and also determines that in which man is absent: at death the multitude of sensory perceptions are extinguished, the dying go from the condition of multiplicity to that of unity and thus attain perfect wisdom and happiness.\(^{93}\) Looking at the “Lambdoma”\(^{94}\) or simply at the “partial-tone coordinates,” one can see the tendency of all tone-values to return to the unity of the generator-tone line, and from there to achieve the “perfect wisdom and happiness” of the \(^{95}\) In the series of mathematical sciences, from arithmetic to geometry and stereometry to the harmonic intervals, the *Epinomis* gives special attention to the arithmetic, geometric, and harmonic proportions. I suggest that the reader look at Fig. 179 in this book. These three proportion types were therefore present in the original Pythagorean diagram, which may serve as further proof of the connection between Plato’s later works and Pythagoreanism.\(^{95}\)

### IV.

**Pythagoreanism**

In this section we will trace the influences of Pythagoreanism from ancient times and late antiquity to the Middle Ages, and in the next will show, with the aid of concrete examples, the akróatic elements in various domains in modern times, and finally, especially in poetry, right up to the present. In sections I through V of this Introduction, my primary task is to collect the information on akróasis up until now in a condensed selection, so that one can see and hear how the characteristic peculiarity of this mode of thought and inner attitude has manifested again and again in all periods. This information, together with the summary of the history of harmonics in §55, can then provide future research with the foundations of a universal history of akróasis.

**Hippocrates; Alcmaeon; Empedocles**

Pythagorean tendencies in medicine appearing with Hippocrates (around 400 B.C.) can be traced to Alcmaeon, a doctor from Croton and a student of Pythagoras. A fragment from Alcmaeon tells us:\(^{96}\) “Health depends on the correct proportions of the

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\(^{92}\) Überweg, op. cit., p. 327.  
\(^{93}\) Überweg, op. cit., p. 324 ff.  
\(^{94}\) For example, Figure 248 in this book.  
\(^{95}\) See “Plato” in the Index for further discussion of Platonica.  
\(^{96}\) Diels, op. cit., I, p. 136.
qualities.” The philosopher Empedocles of Agrigentum (490-430 B.C.) gives us some very concrete harmonic rules for these proportions. On the construction of bones, for example, one of his fragments reads:  

“But the earth took up lovingly, in spacious crucible,  
Of her 8 parts in all, 2 from Nestis [water]  
And from Hephaistos [fire] 4, which became glowing bones,  
Thus glued by harmony into a wondrous image.”

This is the harmonic octave proportion 8 : 4 : 2, or in string lengths on the monochord, 4 \( c_4 \), : 2 \( c_2 \), : 1 \( c_1 \). These two octaves are the range of an average human voice! Desire, flesh, and blood obey the proportions 2 : 1 : 1. All beings are put together from the elements through sound proportions (harmosthenta).  

The following wonderful fragment from Empedocles—one of those that may have inspired Hölderlin to write his Empedocles—tells how, from these primal phenomena, fire, water, and earth (which it is a great mistake to understand in our modern material sense), all form themselves, in hate and love, up to the highest ones, the gods:  

“But come, see testimony to the earlier words,  
Lest they still be lacking for the making of things,  
See how the sun shines warm and bright on all sides,  
And the immortal bodies, replete with light and warmth,  
And the water, which is in all things, dark and cool,  
And springs from the earth, which has foundation and fixed form.  
In hate, all this is torn asunder and made different,  
But it yearns and comes together again in love.  
For thence comes all that was and is and will be,  
Trees grow from it, men and women grow,  
Beasts and birds, and fishes feeding in the water,  
And long-lived gods, foremost in power and noblesse.”

**The Number Seven**

The significance of the number seven is dominant in this early iatro-mathematics, and even more so later. The “tyranny” of this number can predominantly be traced harmonically to the norm of the seven-stepped diatonic scale existing in our psyche. The analogy of the 7 tones to the 7 planets is well known. As an iconographic element, the harmonic scale number 7 has typological significance far into the Middle Ages, and also in art history (e.g. the 7 church modes on the capitals of the 12th century Cathedral of Cluny).

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97 Diels, op. cit., p. 257 fragment 96—this is the metric translation from Karl Goebel, *Die vorsokratische Philosophie*, 1910, p. 196.
Homer’s *Odyssey*, XIX, 456-7, reads:

“And as for the wound of the noble godlike Odysseus,
They bound it up skillfully, and stayed the black blood with a song of healing.”

An ancient commentator already remarked upon “songs of healing”: “One must know that ancient medicine was founded upon singing.” This refers to staunching bleeding with the magic of tones and words, and presumably this is the oldest form of acoustic therapy: the healing song.

*Athanasius Kircher*

Athanasius Kircher made the first comparison of nerves with strings: “The nerves receive the same impression through the outer air / as strings have / when they are pulled over a smooth and resonant piece of wood / and just like these, they become excited / not only through the outer air / but also through the inner air / when it is in proportion / thus nervi and musculi are also agitated and moved / through the inwardly implanted air and spirit / which is like the conductor of the motive power in man / and this proportioned form / in that it concerns the soul, works on it all sorts of alterations / of happiness or sadness.” This passage should comfort all those sensitive to drafts! Examples of this theme of tone and healing could easily be multiplied hundredfold; they serve merely as preparatory illustrations.

*Solon*

It is interesting, and in a certain sense relevant to this topic, how widespread this theory of the number seven was in ancient times. Solon, the famous Athenian lawmaker (around 600 B.C.), wrote an elegy on the hebdomads (sevens) of human life: new teeth at age 7, puberty at 14, beard growth at 21, the greatest bodily strength at 28, the time to marry and produce children at 35, the full development of character at 42, the mature development of understanding and speech at 49 and 56 (through 2 hebdomads), a reversion at 63 (= 9 × 7), and finally, at 70, nothing further until death. This poem of Solon later influenced Aristotle and others; but his theory of the number seven received its highest intensification in the pseudo-Hippocratic writing *On the Hebdomads*, which abounds with septenary analogies. The purpose of this single example of numeric symbolism is merely to show that harmonics, in this somewhat disparaged domain of “number superstition,” may provide quite definite clarifications: the first numbers in the whole number series are present in our psyche as tone proportions!

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101 Extract from *Musurgia Universalis*, German tr., Schwäbisch Hall, 1662, p. 172.
102 See “Medicine” in the Index for further information.
103 See Franz Boll, *Die Lebensalter*, 1913.
104 See §50, and esp. p. 000.
Paestum; Vitruvius

On actual relationships between music and architectural proportions, we have no direct literary sources other than Vitruvius. But the temples themselves are still standing, and we know—just to give one example—that the proportions 2 : 3 (fifth) and 2 : 3 : 5 (triad) were favored in the structure of the Temple of Poseidon at Paestum (early Doric, ca. 500 B.C.). This is not just a “favoring of the simple whole numbers” but a Pythagorean symbolism of tone-producing forms impressed into architecture.

Vitruvius himself gives proportional numbers that are understandable merely with the monochord; anyone who place a bridge on it can “hear” the individual building blocks, In my Harmonikaler Teilungskanon, a division canon of the Pythagorean monochord, I envision an ancient division scheme, whose architectonic possibilities and spiritual and symbolic content were probably used for designs and plans from ancient times up to the Gothic era.

Plato

On the “well-sounding and bad-sounding” in musical rhythm, Plato says: “Painting and all other works of this type are full of it, as are also weaving, both simple and artistic, and architecture and the manufacture of all other implements; also the nature of the body and all other growing things; because in all these dwells a propriety or an impropriety, and impropriety, boundlessness, and dissonance are kindred to evil babble and evil-mindedness, but the opposite is kindred to the opposite, the rational and good spirit and its representation.” Truly, this is the harmonic ethos reduced to a formula!

Longinus

The following is added to the examples given in section III regarding the akróatic element in language, rhythm, verse measure, etc. From the surviving thoughts of the late Greek Longinus on the harmonics of rhythm and meter (Longinus was a contemporary of Plotinus and Porphyry, around 300 A.D.), I have chosen the following: “Meter arose from God, who arranged all heavenly and earthly things to be in tune according to a certain measure: because harmony exists just as much in the upper as in the lower things ... And so all the ancients wrote their books in metrical verse rather than prose. In meter (metrum) there is indubitably a pleasing sound; this belongs to music, and the whole world knows how highly music is everywhere regarded ... rhythm is the father of meter; both come from God.” Even the construction of the letters was attributed to Pythagoras: “Apollonius of Messina tells in his book, ‘On the Old Letters,’ that some said that Pythagoras paid attention to their beauty, making them from geometrically correct shapes, with angles and curves and straight lines.” The tones of the seven planetary

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105 See Index.
106 See Max Raphael, Der dorische Tempel, 1930, p. 19.
107 See p. 000.
108 Occidentverlag, Zürich, 1946.
110 Compare to this the illustration in Jacob Burckhardt’s Griechischer Kulturgeschichte, vol. II: “Die Musik,” which reveals a deep understanding of the universal meaning of “music” for the Greeks.
111 Translation by C.H. Heineken, Dresden 1742.
112 Scholion on Dionysios Thrax, p. 183, 30.

xxxvii
spheres are the seven vowels: “All who used the seven-stringed lyre as the natural scale system began there. Such things do not originate from the spheres, but from the tuned sounds streaming from them into the Everything, which we call the ones that tone and voice in the alphabet.”

**Heraclitus; Stoics**

Heraclitus said: “Things repelling each other unify, from multiple tones emerges the most beautiful harmony, and everything emerges from strife.” The Stoics preserved these ideas in their own way: “Perfect serenity will be that” which “is firmly rooted in the knowledge of the divine and human things, through which it holds the opposites in the world as the most beautiful harmony in creation.” Compare to this the inner “opposites” of our fundamental harmonic diagram, through which the “harmony” (i.e. order) of the cosmos of the tones first emerges! In the Stoic etymology (the study of the origins of words) was practiced rigorously; indeed, the word “etymology” supposedly originates from it. For example, they derived the word *phònè* = *φωνή* (voice) from *phòs nou* = φῶς νοῦ (light of the spirit)!

**Aristides Quintilianus**

Aristides Quintilianus writes: “There are three rhythmic types: the equal (1), the half-added (3 : 2), and the doubled (2 : 1). Some add the third-added (4 : 3) to these.” Harmonically speaking, this means the unison, the fifth, the octave, and the fourth. From these primary intervals, augmented by rising and falling, the metrical foot is constructed by means of combination, etc., and the verse measure by means of the meter. Aristides devoted 39 pages of his work to a very thorough discussion of meter and rhythm, revealing a great sensitivity to the hundreds of verse measure variants.

**Augustine**

If possible, Saint Augustine attacks the problem even more intensively. Right at the beginning he explains music as the measure for judging poetic verse forms. In lively dialogues, which often sound quite modern, he develops the Pythagorean bases of the tone-numbers and emphasizes these numbers as the core of music: “Music is a process that takes place in the most secret inwardness. Therefore it has left some traces behind in our senses, or in the things that we perceive sensorily. Our desire is to pursue these traces from their beginnings outwards, so that we can be led to this inwardness without going astray.” In Books 2 through 5, for 150 pages, Augustine discusses the entire rhythmic and metric system of poetic feet, etc., and in the process he arrives at a total number of 571 (!) as the sum of all meters. In Book 3, Ch. 2, he examines the difference between verse and meter, and uses as an example an ancient poem, for which

114 Diels, op. cit., Fragment 8, vol. 1, p. 79.  
115 Clement of Alexandria: Stromata, IV, §40.3.  
116 Steinthal, op. cit., I, 285. This etymology of the word *phònè* = voice is in no way “childish,” as is foolishly believed in modern times—as in, for example, Paul Barth’s *Stoa*, 1908, p. 119. Instead, it is supported by the deepest knowledge of a metaphysical relationship between tone and light.  
117 Über die Musik, tr. by Schäfke, p. 216.  
118 Musik, tr. by Perl, 1937.  

xxxviii
no external author has yet been identified. It is reproduced below in Perl’s translation (op. cit., pp. 90 and 295), since it is beautiful and indicative of the great Church Father’s lack of prejudice. Perhaps it is an early work of Augustine himself.

“So come here, ye Muses,
Spring-dwelling maidens,
Who sing the sweetest songs
In the shadows of the caves;
Who bathe your scarlet hair
In the spring of Hippocrene
Where once also Pegasus
Refreshed his steaming nostrils
And dripping mane,
To then seek in hurried flight
The dwelling of the Gods.”

The sixth book contains a grandiose metaphysics of “music.” “Here the spirit is led out from the lower regions, from observing mutable numbers to observing the immutable numbers, whose origin is in the unchanging truth itself.” The dialogue between teacher and student goes back and forth for a long time on the subject of “inner hearing,” the ability to remember, and the ability to form melodies and rhythms in our psyche that are superposed on outer hearing. The melodies that one hears in the “debauched theaters” do not fit the Biblical saying (Eccle. VII, 25): “I have traveled far, that I may grasp, observe, and study wisdom and number,” but instead “those, I believe, which the soul does not draw from the body, but receives from almighty God and of itself imprints on the body.” And finally the apotheosis of “number” (it is obvious from the above that this refers to tone-number) at the end of the work: “In all that we grasp with the help of the senses of the flesh, and in all its content, spatial numbers must exist in some form, and temporal numbers, whose essence is motion, must have secretly preceded them: otherwise these elements could neither assume their form nor retain it. These numbers, moved in segmented temporality, are preceded by the life movement containing form and measure, obeying the Lord of all things; the life movement no longer has any temporally separated space between its numbers, instead it possesses time-creating power. Above it still stand the rational and spiritual numbers of the blessed and holy spirits who transmit the law of God, without which no leaf can fall from a tree, with which each of our hairs is counted, and which the angels receive without the mediation of nature and transmit to terrestrial and subterranean powers.” Augustine wrote his De musica as a 30-year-old rhetorician, after his meeting with Bishop Ambrose in Milan in the year 384. Here he fell helplessly under the spell of music, as another passage in his Confessions relates:120 “How I have wept at these hymns and songs, moved by the voices of your church, which ring so sweetly. The tones flowed into my ear, the truth flooded my heart ...”

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120 IX, 6.


**Gnosis**

Hippolytus, in his account of the heresies of the Phrygians, reports that they called reborn spiritual people by the name “Papa,” and meant all heavenly, earthly, and subterranean beings when they said: “Pau, pau—stop, stop the dissonance of the cosmos!” 121 Again and again, the mysterious power of the call, the voice, and the name breaks through. “Simon Magus the Gnostic teaches that there is an unlimited power and calls it the origin of everything, stating the following: ‘This writing of the proclamation of a voice and a name comes from the decree of the great, unlimited power.’” 122 The verse at the beginning of Genesis: “And God made two great lights: a great light to rule the day and a lesser light to rule the night,” is interpreted by Simon thus: the sun and moon are the powers of the voice and the name, the speaking and the spoken. 123 According to the Gnostic Marcus, the hidden, beingless deity opens its mouth and emits the word (Logos) that is its likeness. This Logos now speaks various archetypical names: “Each of the letters [of the names] has its own sign, its own character, its own pronunciation, its own form, its own appearance, and none of them knows the form of that of which it is only a letter, indeed it does not even comprehend the utterance of its neighbor; with the sound that it makes itself, it believes that it is naming everything.” 124 Marcus is the “Greek classicist of letter-metaphysics.” 125 Thus the “dieresis” of the letters goes forth into infinitude; but everything returns to the letters from whose pronunciation it emerged, back into the lost unity, and sounds therein as on the first day: one day everything will resound in a World-Amen.

F. Dornseiff 126 believes that this idea “is not lacking in grandeur,” and as harmonists, we see in this an astonishing concordance with the value-formal content of the fundamental Pythagorean diagram of the “P.” The reader will be able to judge this for himself after studying the relevant chapters of this book.

**Proclus; Plotinus; Prudentius**

The last great synthesist of the Greek philosophers, the Neoplatonist Proclus (410-485), believed (like Kepler, who quotes him extensively) that the psyche contains the “harmonically making” (harmonika) before the “harmonically made” (harmosmenoi), 127 or as we would express it: some psychic prototypes must be within us a priori, otherwise we would not be able to tell whether a harmony is in tune or not.

“Since it is thus that the whole world attains existence, look upon it: then perhaps you will hear its voice,” says Plotinus 128 (205-270), the most important Neoplatonist. And Prudentius, the master of Christian poetry, tells his spirit: “Let loose your voice, sonorous spirit, free your noble tongue, tell of the triumphal signs of the Passion.” 129 Both are typical akróatica, referring repeatedly to the toning magic of voice and word.

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125 Dornseiff, op. cit., p. 128.
“Just as the individual string is set in its proper place corresponding to the ratio of its tones, just as it appears with its ability to sound,” so the soul enters into the poetry of the world: “Every soul sings the song from its place, harmonizing both with the place and with the collective all.”130 “The unutterable names of the Gods, so the theurgists say, fill the whole world, and not only this world but all powers over the world. Before the souls come into being, they see that the Gods fill the whole world with themselves and their names. They long to be like them when they have come into being,” says Proclus131 in his Commentary on Plato’s First Alcibiades.

**Synesios**

Extensive Pythagorean knowledge is revealed in the wonderful hymns of Synesios of Kyrene (370-414), pupil of the Neoplatonic philosopher Hypatia,132 who was lynched by a mob. Here are a few lines:

“Up! You resonating lyres;  
After playing the Theban song  
And the melody of Lesbos,  
Now in yet more noble manner  
Play the Dorian song!

See, my strings vibrate  
Unbidden, and a breath  
Blows soft around me;  
Which song will at last  
Deliver me of this divine breath?  
He, the self-producing origin,  
It is he, Lord and Father,  
Uncreated and exalted,  
Enthroned in invincible glory  
O’er the highest peaks of Heaven,  
He, the never-moving God.  
Sacred unity of the unities,  
First Monas of all the Monads  
Uniting all the separate  
High ones, and begetting them  
In super-existent births.  
Hastening from there, then,  
Through the first-born form  
Inexpressibly diffused  
The Monas nears with threefold strength  
And the spring reaching sky-high  
Crowns itself with children’s beauty  
Who run from the center point

130 Plotinus, op. cit., pp. 48-50.  
All to move around the same.
Stop now, thou brave lyre,
Stop, do not reveal sacrosanct
Initiations to the people!
Go, and sing of lower things,
Hide the higher things in silence.”

(from the first hymn.)

Those who hold the forms of the fundamental harmonic diagrams within themselves, and have meditated on their symbolism, cannot but wonder at the precision with which these forms are given poetic expression, and likewise at how long after the Pythagorean pact of silence, almost 800 years, the “initiations” of the wisdom of Samos were still in effect: “Hide the higher things in silence.”

**Hymnology**

In all of hymnology, from the earliest times, there has been a hidden akrôatic element, connecting “singer” and listener, through the medium of the tone, to the origin of the world. The earliest religious documents, such as the *Rigveda*, were not actually “sung” but read at certain pitches in emphatic and rhythmically segmented speech. In Indian mythology, the Gandharvas and Apsarasas (the genies of music and dance surrounding Indra) become the musicians and singers of the god. With song and dance, they celebrate the joyful events in which the gods took part. The *Pantscha-tantram* says: “There is nothing dearer to the gods in the world itself than song; Ravana caught Sira himself with the enchantment of song.”

In the cult festivals of ancient Egypt, the singer led the celebratory processions: “The singer goes first from the sanctuary, carrying one of the emblems of music. It is said that he should have memorized two books of the writings of Hermes, one of which contains hymns to the gods, the other a description of the royal life.”

Morris Jastrow concludes from the outward construction of an Assyrian hymn that the lines were sung alternately by the leader and the choir of priests. And there are discoveries from the 3rd and 4th millennia B.C., and later pictorial representations of instruments, choir processions, etc., which can only be interpreted cultically, therefore this can also be thought of as a synthesis of word and “song.” Consider the Psalms of David and the Gregorian chant that still lives on today! And then the concept and figure of the rhapsodist, the singer! Here one should not imagine a “musical” performance in our modern sense. In the Homeric poems, the hymns of Pindar, the ancient Greek dramas, all of which were recited and sung, the tonal element must have been much more inwardly connected with the content; the text was not “composed,” but the tone, like rhythm and meter, was a means of bringing the meaning and events of the poem from their innermost places out into the sphere where norm and law, divine and human, are blended into one. The ancient Goths even used the same word for singing as for

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133 Ambros, *Geschichte der Musik*, I (2nd ed. 1880), pp. 43-44.
134 Clement of Alexandria, *Stromata*, tr. by Overbeck, Basel 1936; Book 6, Ch. 4.
Unfortunately, through the emancipation of music, which since the Renaissance has followed the same course as science and religion, this synthesis has been lost to us today; only in Gregorian chant there remains a reflection of what used to be reality.

**John Chrysostom**

In connection to Augustine, we should remember the akróatic declarations and teachings of another Church Father, since they are of fundamental importance for “distilling” harmonics throughout the Middle Ages. John Chrysostom states that a well-ordered melody and a rhythmically delivered hymn are the things that, above all else, lend wings to the human soul, truly release it from all earthly things, free it of all the fetters of the body, and make man a philosopher, contemptuous of all external arts in life.138

**Gregory of Nyssa**

Gregory of Nyssa says that music is a harmony that represents the song of the divine power that governs all; because the sympathy and agreement of all things with one another, regulated according to a certain order, create the true, great music that the world ruler lets sound.139

**Rabanus Maurus**

No branch of knowledge, says Rabanus Maurus, can be complete without music; because without music, nothing can exist at all. The whole world is bound together according to harmonic laws, and heaven itself moves in harmonic sounds.140 Here, as in classical times, one should understand “music” to mean not only practical musicianship in religion, but also to include the speculative examination of harmonic problems, even though these can also get lost in primitive analogies. “People always asked what music was about, not in its nature, but in its meaning,”141 i.e. not what is music as an autonomous art apart from all others, but where does its enormous effect come from, what does it mean in its universal sense, what correspondences do its laws and norms have in nonmusical domains? The psalmody that still plays such a great role in the life of Catholic monks—each week, for example, the Benedictines recite the complete Psalter!—stands entirely upon this metaphysical background, as does the more “sung” hymnology.

**Methodius**

“O the sonorous harmony that comes from the Holy Spirit!” exclaims Methodius: “Thus we also will sing the same song and send a hymn up to the holy Father. Do not flee, O people, from this spiritual hymn, and do not close your heart malignantly against its sounds!”142

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140 Op. cit., p. 82.
Jerome

Throughout the Middle Ages, the comparison of the earthly body with a musical instrument was one of the inflexible conditions of the musical-allegorical system. Saint Jerome says: the Psalms relate correctly to the ethical side, so that we know through the instrument of the body what to do and not to do. But whoever speaks of higher things and attentively discusses the harmony of the world and the order and concord of all creatures, he sings a spiritual song.143

Otho the Monk

In the 11th century, Otho the Monk arrived, through his observation of heavenly harmony, at the remarkable opinion that in heaven, one person relates to another, according to merit, in the ratio of the octave, fifth, or fourth.144 Nothing is easier than to dismiss such passages with a shake of the head, but nothing is more difficult from our modern viewpoint than to understand, from this ludicrous analogy, how it was meant: as an inner value-form projected from the resonance of our psyche in an akróatic image—were it not for harmonics, which allows us to take such things seriously once again, and understand them.

Nikolaus of Basel; Heinrich Suso

We will conclude this section with the voices of two more mystics. Nikolaus of Basel says of peace in God:145 “There no lark nor nightingale errs in its song. They sing equally according to their manner, when the first mastering of divine consciousness stirs the motion of the tongue toward the eternal images.” And in the biography of Heinrich Suso (14th century) there is the following vision:146 “They led the servant [Suso] by the hand to the dance, and the youth sang a happy little song about the baby Jesus, thus: in dulci jubilo ... As the servant heard the beloved name of Jesus sound sweetly, he felt so well at heart and in his senses that he forgot he had ever sorrowed. Now he looked with joy at how they were all leaping around, so high and free. The head singer performed most beautifully; he sang first and they afterward, and they sang and danced with rejoicing hearts ... this was not the kind of dance that is danced in the world: it was a heavenly undulation and effervescing into the solitary abyss of the divine secret.”

V.

Modern Times

In modern times the akróatic worldview broke apart. The sciences emancipated themselves, religion became “private”—despite or because of the Reformation?—and spiritual aspirations to unity took refuge in philosophic thought. There was no more room for “tone” in the speculative sense, in the sense of “listening to the world.” Music also

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freed itself increasingly from religious ties, and became, like the other arts, “autonomous.”

The great exceptions are Kepler and Albert von Thimus, if we consider the emergence of harmonics as a stimulus for science and history in modern times. Some exceptions of the second degree are Mersenne, Athanasius Kircher, and Robert Fludd, not to mention many names of the third degree. But “under the rug,” so to speak, we find harmonics in many more places than it would at first seem, and the following examples, up to the present day, serve as proof of these “akróatica.”

Kepler

Kepler emphasizes in his *Harmonice Mundi* that in opposition to the “meaningless symbolizations” of Ptolemy and the old speculations about harmonies of the spheres, he has reestablished harmonics upon scientific theorems, in astronomy: “Therefore, with an improved astronomy that establishes the true and simple movements of the planets, eliminating the apparent, the things that rest upon the deception of our sense of sight, I have shown that all harmonic proportions appear in the heavens according to a true and real proportion, quantitative and measurable, not according to a mere meaningless symbolization, as well as the keys, the musical system or the scales and most of their notes, the differences of the modes, the imitation of polyphonic music by the planets, and finally the collective counterpoint of the six primary planets, which varies according to the keys and modes.” 147 In the dedication of his work to King James of England, he supports this, and his investigations, with the words: 148 “The reasons for thinking of this *patrocinium* in terms of my harmonics originated from that manifold dissonance in human affairs that is too well-known not to affect one, but which is built from true and plainly perceptible intervals, whose nature it is to soothe the hearing amidst dissonance by promising a pleasant concord to follow, and to keep it in happy expectancy.” Throughout the entire work the numbers found in the sky are harmonized, i.e. converted to tone-numbers and “scientifically” analogized: 149 “As the simple or monophonic song known as plainsong, which alone was known in ancient times, is to the polyphonic so-called figured song, which is an invention of the last century, so the harmonies made by the individual planets are to the harmonies of the planet pairs.” “Harmonies” is no vague concept for Kepler, no “hint,” no *epitheton ornans* as is has been considered by all of modern science since Whewell: instead, it conforms to tone-numbers, intervallic proportions, scale steps. It was by means of these tone-numbers, i.e. through harmonic analyses, that he discovered his Third Law! 150 For Kepler, the formative idea lies in these harmonies, not just in the geometric figures: “Thus I came gradually, especially in recent years, upon the harmonies, tolerating very small variations in the spatial figures. The thought came to me that on the one hand, the harmonies played the role of form, applied by the final touch, whereas the figures played the role of the material that is in the number-world of the planetary bodies and is the gross extent of spatial domains. The harmonies, on the other hand, also provided eccentricities, which

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150 See “Kepler” in the Index.
the spatial figures never offered.”151 And precisely through this harmonic and not “physical” observation—that the tone-numbers and tone proportions play a decisive role in the eccentricities of the planetary orbits, and that through them the Creator “applied the final touch”—Kepler found his famous Third Law. Because for him, the harmonist, the discovery of the exponent $\frac{3}{2}$ was the fifth, the interval that generates all diatonic steps, and in the formula $p^2 = cr^3$ ($p =$ orbital period, $c =$ a constant, $r =$ radius vector) he saw, behind the relationship of orbital period and orbital radius, the background of the psychic form of the “dominating” interval, the fifth! Later in this book, the reader will discover other “harmonies” in this main work of Kepler’s, as well as other “Kepleriana.”

**Thimus**

Speaking of Kepler, here is a quote from the second great harmonist of modern times, A. von Thimus,152 which gives, in a certain sense, a concentrated summary of his way of thinking: “Only by means of thought, and only with the inner ear of a God-enlightened sense, can the indescribable sound of this harmony, eternally exalted above human earthly music due to its impressiveness and beauty, be surmised. Only by the Creator himself, and by the blessed spirits joined with him, is it beheld and known in its entirety. Its sounds come together from the opposition and gradation of powers concurring and unifying harmonically in a higher accord, as well as from the diversity and yet the strict order of the movement that forms itself through the action and reaction of these powers in colorful multiplicity according to the laws of an entirely musical number, faster or slower, greater or smaller, more closely bounded or reaching into the outermost distance.”

**Tersteegen**

Only by means of thought and the inner ear of a God-enlightened sense! That is the *harmonia aphanes* (the hidden harmony) of Pythagorean esotericism, as the mystic Gerhard Tersteegen writes:153

“I am in the dark sanctuary,
I pray and remain mute,
O awesome silence!
The best speaker cannot tell me
What is wordlessly spoken here
Through love and through submission.”

**L.B. Alberti**

In his *Theory of Art*,154 Leon Battista Alberti, probably the most universal mind of the Renaissance next to Leonardo da Vinci, takes up Vitruvius’s harmonic ideas.155 “I call outline a certain ratio of lines which measure expansion according to length, width,
and height. The law of outline is best derived from things in which Nature clearly and impressively reveals herself as wondrous and thoughtful. And truly, I always agree with Pythagoras’s statement that she is equally present in all her creations. The same numbers, through whose ratio the harmony of voices sounds pleasingly in the ears of men, also fill the eyes and the soul with strange delight. Thus I will derive the law of the outline from the musicians to whom these numbers are well known, and otherwise such ratios whose constitution holds something exquisite and valuable.” Alberti then discusses the interval proportions very precisely, and builds his architectonic eurhythmics upon them.

**Jakob Böhme**

In Jakob Böhme’s theosophy, “reverberation” or “resonance” is the sixth nature-form, concluding the evolution of the “eternal nature.” The *Aurora*, Ch. 10, 1, reads: “The sixth source spirit in the divine power is the resonance or tone / that clangs and rings everything within / from there comes speech and difference of all things / as well as sound and song of holy angels / and therein is the formation of all colors and beauty / and the heavenly domain of joy.” In this doctrine of nature forms or “qualities”—a type of metaphysical principle—“tone” therefore means grasping and becoming conscious of things. From this comes the “speech and the difference” of all things, articulation and “formation” in the broadest sense.

**Baader; Schelling**

Franz Baader, the great commentator on Böhme and profound theosophist, part of that German idealism which continually surpasses itself intellectually, carries this idea of Böhme’s further, in his own way: “All movement [e.g. of the stars] is figure writing, and these natures write because they cannot speak.” Here, the replacement of speech with “figure writing,” mute speech, changes through movement into form! Schelling, who was strongly influenced by Böhme and Baader in his later work, writes of a “wonderful” explanation of the “resonance-principle” as of an “inner light.” However, the only modern philosopher who has declared possible the restitution of harmonics as a science is Schopenhauer.

**Schopenhauer**

After deep reflection upon the nature of music in the 3rd book of his main work, *Die Welt als Wille und Vorstellung*, Schopenhauer writes: “One could call the world embodied music just as much as embodied will.” His view is that “the apparent world, or nature, and music are two different expressions of the same thing,” and in conclusion he summarizes as follows: “If I am given the task, in this whole illustration of music, of making it clear that it declares in a most universal language the inner nature, the In-Itself of the world (which we think of, according to its most usual utterance, as the concept of Will) in a unique medium, namely simple tones, and does so with great certainty and truth; if, moreover, in my opinion and aspiration, philosophy is nothing

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156 *Gesamtausgabe*, vol. 2 (1851), p. 396.
157 *Philosophie der Offenbarung* I, p. 121.
other than a complete and correct repetition and enunciation of the nature of the world in universal concepts, since only thus is a sufficient and correct overview of this whole being possible, then those who follow me and have entered into my way of thinking will find it not so paradoxical when I say: supposing that a complete, correct, and detailed clarification of music, hence an exhaustive repetition of that which it expresses, were given in concepts, this would also immediately be a sufficient recapitulation and clarification of the world in concepts, or something equal to that, and would therefore be the true philosophy; and that consequently we can parody the saying of Leibniz quoted above [music is a mysterious arithmetical exercise of the soul = ‘Musica exercitium arithmeticae occultum nescientis se numerare animi’], which is completely correct from a lower viewpoint, in the sense of our higher viewpoint of music, as follows: ‘Music is a mysterious metaphysical exercise of the spirit, unconscious of its philosophizing’ [‘Musica est exercitium metaphysices occultum nescientes se philosophari animi’]. For scire, to know, always means to have set down in abstract concepts. Since further, by virtue of the much-supported truth of Leibniz’s pronouncement, music, disregarding its aesthetic or inner meaning and observing it merely outwardly or empirically, is nothing other than the means of grasping, directly and in concreto, greater numbers and more complicated number-ratios than we would otherwise be able to know indirectly through grasping them in concepts; thus, through unification of these two so different and yet correct views of music, we can make for ourselves a concept of the possibility of a number philosophy, like that of Pythagoras or the Chinese in the I Ching, so as to then interpret, in this sense, that saying of Pythagoras which Sextus Empiricus161 presents: ‘τῶ ἀριθμῶ δὲ τὰ πάντες ἐπέοικεν = all is assimilated through number.’” Here one must naturally abstract from the familiar concept of “music” and understand it in its broadest sense: just as broadly as Schopenhauer does.

We modern harmonists admittedly consider our discipline as one, but not the “true philosophy”; the possibility of a “number philosophy,” on the other hand, emerges of itself within harmonic symbolism.

Language

In akróasis we attribute a special significance language. We have seen that the ancient Greeks, upon whom all our Western culture is built, were fully aware of the harmonics of language and its elements: word, syllable, letter, grammar, and then the rhythms, meters, etc.—a knowledge that has been completely lost in this concrete sense in modern times. Despite this, language remains a phenomenon of the greatest significance for us: through ear and mouth, humans give and receive immaterial things; by means of the “tone,” therefore acoustically, we communicate all our thoughts and aspirations; in short, it is what makes us human. Since this is not entirely self-evident—because we could quite easily think of other means of communication, such as sign language—and since, furthermore, language is “at home,” so to speak, in the house of harmonics, i.e. its actual native rights are there—the phenomenon of speech gains a much deeper foundation through this than it could have if it were merely isolated, standing alone. Through the portal of akróasis, language enters the toning foundations of the world; only in front of this universal background is its existence understandable at all. Many great modern scholars and philosophers of language have been aware of this

161 Adv. Math., VII.
background; the fact that they did not perform specifically harmonic “linguistic” investigations in the manner of the Classical Greeks is irrelevant. From the wealth of examples I will give only a few.

**Hamann**

“The invisible nature of our soul,” writes Hamann, the “Magus of the North”\(^\text{162}\)—“reveals itself through words—as if creation is speech whose string stretches from one end of the heavens to the other.” And further: “Every appearance of nature was a word—the sign, symbol, and pledge of a new, mysterious, inexpressible, but all the more intimate unification, imparting, and partnership of divine energies and ideas.”\(^\text{163}\) Further: “Were I as eloquent as Demosthenes, I would still only need to repeat a single word three times: consciousness is language, Logos. I gnaw on this marrow bone and will gnaw on it until I die. Yet these depths remain forever dark for me; I am forever awaiting an apocalyptic angel with his key to this abyss.”\(^\text{164}\)

**Herder**

Herder, at least in his prize essay “Über den Ursprung der Sprache” (1770), dismisses the “divine origin” of language as “nonsense,” though later he modified this opinion. “In that all of nature produces tones, there is nothing more natural to a sentient person than to think that it lives, it speaks, it acts.”\(^\text{165}\) “Resounding verbs are the first power elements of the most ancient languages: predicates, as yet no subjects.”\(^\text{166}\) In this primitive acoustics, the ear is the “organ of the median.”\(^\text{167}\) It stands between touch and sight, it is the actual “bond between the other senses,” and is thus predisposed to spiritual mediation. Hamann was the akróatist of language; Herder the acoustician.

**Wilhelm von Humboldt**

For Wilhelm von Humboldt, “man is a singing creature, also combining thoughts with tones.”\(^\text{168}\) In contrast with Hamann, and in supplement to Herder, he places language within becoming: “Language is no completed, static thing, but something at every moment becoming, emerging, and vanishing.” “Language is the constructing organ of thoughts.” “Language intervenes between man and nature, which acts inwardly and outwardly upon him. He surrounds himself with a world of sounds, so as to take the world of objects into himself and work on it.” Language, for Humboldt, is a “worldview,” coming from a greater depth of human nature than anything else humans produce; it arises with the human spirit from the origin of spirit itself. As for acoustic sensitivity to the sound, pitch, emphasis, etc. of words, non-European languages surpass ours significantly.

Humboldt was especially fond of the delicacy of Indo-Chinese languages.\(^\text{169}\) In Sanskrit, the so-called *Guna* and *Wriddhi* are the means of emphasizing the vowels, a

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\(^{166}\) Op. cit., p. 73.


\(^{168}\) This and the following quoted from H. Steinthal, *Der Ursprung der Sprache*, 2nd ed., 1858, p. 61 ff.

shifting that can hardly be described with words, has nothing to do with grammar, and
can be perceived clearly only by the ear. Then there is the monosyllabic quality of the
Chinese language, in which the same word has multiple meanings, often through a dozen
purely acoustic nuances! In the Siamese and Annamese languages, there are so many of
these nuances that it is almost impossible for our ears to tell them apart. Every significant
locality has its own language-scale, and to communicate with neighboring localities, one
must sometimes have recourse to written language.170

**Schopenhauer**

Schopenhauer is the only great modern philosopher to have evaluated music
coolly and calmly in terms of its own meaning, not laden with resentment like Nietzsche,
and thus to have reached such depths that, as we saw above, he even foresaw the
possibility of a future harmonics. In his *Welt als Wille zu Vorstellung*, he writes:171 “Sight
is the sense of understanding, which observes; hearing is the sense of consciousness,
which thinks and perceives.” The meaning of this is obvious if it is compared to the
Kantian definitions of understanding and consciousness, which indeed Schopenhauer
followed.

**Hermann Augustin; Dante; Goethe**

Hermann Augustin’s inspired and inspiring work, *Dante, Goethe, Stifter*,172 reads:
“Dante hears God intone through him: ‘Io mi son un che, quando amor mi spira, noto ...’
Notare means to listen, write, notate. Dante further strengthens this radiant terza rima
with significare, i.e. signa facere, to create symbols. Notare is the primal word of subjective
poetry, significare that of objective poetry. Dante’s terza rima is reminiscent
of the legend of the Memnon columns giving forth tones in the sunlight. The string-
playing God built Ilion’s walls. Love, sings Dante, moves the sun and the stars. ‘The
column shaft, the triglyph sounds,’ Goethe proclaims, ‘My strings sing only of love,’
sings a song of Anacreon. With the ‘pearly script of tears’ Goethe described the ‘double
pleasure of tones like love.’ Here music and poetry are one.”

**Brentano**

Brentano, who has, according to Nietzsche, the most “music in his body” of all
German poets, tells in the *Romanzen von Rosenkranz* of a book from which Adam
learned language in the beginning:

> “From the vowel’s enlivening wonder
> Before the secret of the diphthongs
> And from the consonants’ hunger
> Did he learn to cook words.”173

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171 Book I, Ch. 3.
172 Basel, 1944, pp. 176-177.
Helmuth Pleßner

Related to the theme of the akróasis of speech, a passage from Helmuth Pleßner’s famous work, Die Einheit der Sinne—a work of fundamental importance for rebuilding our sensory apperceptions—reads: “In that the problem of the origin of speech has an ahistoric sense, it lies concealed in the joining of sound and meaning—and today even the most doctrinaire philologists see from the breakdown of historicism and psychologism that something is hidden in the problem that neither history nor psychology can find. It is not a task of philosophy to imagine a specific sound form. We must historically test the genealogy of the definite. The question that we have repeatedly touched upon, of the reason why information must be imparted by means of sound, a question that Herder and Humboldt formulated most emphatically in the early days of historical philology, can be answered neither historically nor psychologically.” But this question can be answered harmonically. If it is evident—and all harmonic investigation since the earliest times is proof of it—that both nature and our psyche form the auditory, acoustic element, together with the norms and laws peculiar to it, then this is the explanation for the fact, by no means self-evident, that we understand each other by means of word and language rather than through visual or haptic media (though deaf and blind people are completely capable of it); and therefore that the acoustic is also the medium of expression of our spirit and consciousness.

Language and Writing

From the viewpoint of akróasis, a special significance can also be seen in the connection between language and writing. As will be explained later, the specific proportions of numbers that contain the tone-ratios make it possible to transpose the acoustic into the optic. If we understand this possibility, which is universally immanent in all tonal forms, then we can understand the connection of the written and spoken word in a more fundamental, categorical way. This can explain why peoples who are highly sensitive to the acoustics of language—such as the Chinese—have writing of such a great artistic quality, meaning much more to them than mere symbols for concepts. Their characters and concepts come from a common center; the spirit entices visual images from the writing hand, which are then acoustically made sensory in various ways. Concept, written character, and word are brought to a marvelous synthesis by means of the sense of touch of the writing hand, where they stand unique in human history. Somehow, this synthesis naturally applies to every fixing of language, whereby the optic and the acoustic often appear with a direct external connection, even applicable to individual letters: think of the vowel “o,” which in European languages has exactly the form that our mouth uses for its realization.

On Chinese writing, Lin Tsiu-sen, in China und Japan, writes: “The usage of Chinese writing means more than that of just any writing, because the Chinese characters were originally pictures, like hieroglyphs ... soon a development began in them that allowed Chinese writing to become what it is now: the basic images were condensed to 214 roots or radicals, and from them the individual signs were composed, in the full sense of this word. Just as for the ear, a mood emerges in the listener through a musical phrase, so an idea emerges in the reader through the radical phrase. Unlike the melody, which is

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174 Bonn 1923, p. 227.
made the same for all time by the composer, the Chinese character presents an ever richer and richer idea.”

**Word and Language**

To summarize the examples history offers us of the *akrōasis* of words and language, we can say: it is no coincidence that even in ancient times, religious cults used not only words, but also acoustically augmented speech, emphatic pronunciation, and hymns, and that the historical awakening of humanity is concentrated in the ballads and songs of the heroic ages. *Rigveda* means a collection of songs; the Homeric epics were originally recited, sung; and even in the Middle Ages the Nordic bards sang ballads of love and heroism. It is no coincidence that the Greeks used *logos* as a common term for word, speech, responsibility, and consciousness, nor that the term “person,” “personal,” as an expression for the human individual, is derived originally from the Latin *personare* = to “sound through,” call, proclaim. Nor is it a coincidence that in the German language, *Vernunft* [consciousness] comes from *vernehmen* [to hear], *Verantwortung* [responsibility] from *verantworten* [to answer], *Gehören* [to belong] from *ge-hören* [hörren = hear], and *Beruf, Berufung* [profession] from *be-rufen* [rufen = to call]. At the root of all these concepts is the acoustic, the auditory in its broadest and deepest sense. We have become deaf to the spiritual background of these symbols, which speak such a clear language, precisely because the familiarity of the daily use of these concepts has made us unaware of the unfamiliarity of their actual meaning.176

As a conclusion to this section, we will let *akrōasis* speak to us from a few more examples of modern poetry. We must eschew musical examples, since the great names of music will be familiar to every reader, and a proper representation of them, at least for most people, is only possible through hearing.

**Luis de Leon**

The Spanish poet and theologian Luis de Leon (1527-1591) wrote an ode to the musician Salinas, which was translated by Karl Voßler:

“How cheerful and how clear
How youthful and how light is what surrounds us,
Salinas – wondrous,
when music sounds
brought forth by your well-practiced hand.

It sounds like heaven playing.
So blind was my dull soul:
and now the endless goal
It sees again and reaches –

176 Recently, scholarship appears to have become more aware of the tonal in word and language. Maria Schubinger, Anglicist at the University of Basel, referred, in a lecture in Zürich, to the significance of the “melody of speech,” whose study is still in its early stages. Many difficulties in interpreting old texts come from the fact that only the sound of the word has come down to us, and not the melody of the speech (*Neue Zürcher Zeitung*, 22.4.1944).

Admittedly, this is only one problem of interest to future harmonic scholars of language, and probably not the most important.
the place of its first sources.

Since now it knows itself, its fate and all its cares are lightened, it burns no more for gold, for which the envy pales, and is by no false beauty weakened.”

“My soul flies through the mist to stand on highest heights: and there it hears an art not blow away by wind, that follows ancient laws.

It sees the master then, how he strikes enormous strings plays artfully upon them, so that there moves forth the great tone, carrying the eternal work.

Therein the soul feels made in even tones as well, it hastens to reply, it echoes near and far singing back in graceful harmony.

The little boat of the soul rocks on waves of blissful sound through seas of tones, until therein it drowns, and hears and feels no more, those things from outside strange and wandering.

Thou holy ecstasy and death, which giveth life and sweet oblivion! May it be blessed by eternal rest! And ne’er find its way back to lower senses, earthly binding us.”

**Dante**

The strict architectonics of the *Divine Comedy* shows Dante’s knowledge of mysterious Pythagorean wisdom. “He holds tightly to numbers, so as not to fall into the divine darkness that hastens in upon him.”

A verse of *Purgatorio*, 30, 92 [Longfellow translation] reads:

“Before the song of those who sing for ever
After the music of the eternal spheres.”

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177 St. Augustine, op. cit., p. 203.
Shakespeare

Shakespeare’s Lorenzo repeats this tone in *The Merchant of Venice* [Act V, Scene I, 58]:

“Look, how the floor of heaven
Is thick inlaid with patines of bright gold:
There’s not the smallest orb which thou behold’st
But in his motion like an angel sings,
Still quiring to the young-eyed cherubins;
Such harmony is in immortal souls;
But, whilst this muddy vesture of decay
Doth grossly close it in, we cannot hear it.”

Heinrich von Kleist

Heinrich von Kleist writes, in a letter from August 1811: “I feel that the various ill tempers in my mind are growing worse and worse in the hateful circumstances in which I live, and that if I were ever to find a properly serene enjoyment of life, perhaps it could easily be achieved harmonically. In this case I might practice the art for a year or more, and but for a few fields of study in which I have some things still to finish, I would occupy myself with nothing but music. For I see this art as the root—or rather, to express myself pedantically, as the algebraic formula—of all things, and just as one poet (with whom I would never presume to compare myself) has expressed his thoughts upon the art he practices in colors, so from my earliest youth on, I have related all my ideas about poetry to tones. I believe that the thoroughbass contains the most important revelations on poetry.”

Rückert

In §25a of this book, a poem by Rückert is quoted, which expresses the spiritual content of the basic Pythagorean diagram with a visionary view. Rückert’s poetry is also full of akróatic elements:

“Oh, that my life
Might have been a song!
Every storm and every stress
Would serve for its harmonies.

What has not been sung, to me,
Has not been lived;
What is not yet conquered
Shall still be striven for!

Of the world around me
I knew impermeably little;
but the soul gives forth its sound
And the world is singable.”
Hölderlin

"Farewell, ye heavenly ones—I often said in spirit, when the morning light’s melody began to play softly over me," reads Hölderlin’s Hyperion. "He lives only in the eternal keynotes of his being, and we step forth unadorned from one great harmony to the next." In his friend Alabanda, Hyperion found his first, deepest resonance; in Diotima, the last: "Was she not mine, united with me in all tones of life?" "That is also my hope, my desire in lonely hours, that such great tones, and yet greater, may one day return in the symphony of the world’s course. Love bore millennia of living people; friendship will beget them anew. Races once emerged from infant harmony, the harmony of the spirit will be the beginning of a new world history."

In the poem Sonnenuntergang, Hölderlin perceives tone, light, and nature in a “drunken ecstasy”:

“Where art thou? drunkenly my soul doth swoon
From all your ecstasy; because ’tis that
To which I listened, as replete with tones
Of gold, the enchanting sun-youth

Played his evensong on heavenly lyre;
All the woods and hills rang with the sound.
Yet he is gone away to pious folk
Who worship him still.”

Novalis

"O, that man might understand the inner music of nature and have a sense of outer harmony!" writes Novalis in Die Lehrlinge zu Saïs. In the legend of Heinrich von Ofterdingen, the hero’s weaponry “clangs,” and during the game of the stars there is “a soft but deeply moving music in the air, that appeared to come from the wondrous intertwining of the stars with one another in the dome, and from other curious movements. The stars moved around, now quickly, now slowly, in steadily changing lines, and artfully traced the figures of leaves, following the progression of the music…” In the fragment “Die Natur” (Die Lehrlinge zu Saïs, II), one of the deepest visions of German Romanticism, Novalis dreams of the primal language of the predecessors of humanity: “Their declarations were a wondrous song, whose irresistible tones reached deep into every nature and dissected it. Each of their names seemed to be the keyword for the soul of every natural body. With creative force these vibrations aroused all the images of worldly appearances, and of them it can rightly be said that the life of the universe is an eternal, thousand-voiced speech …”

Eichendorff

Eichendorff’s Wünschelrute [Divining Rod] touches and sounds:

“There’s a song that lies asleep
Inside every dreaming thing,
And if you find the magic word,
Then all the world will rise to sing.”
Adalbert Stifter; Nikolaus Lenau

In Adalbert Stifter’s *Narrenburg* we find the sentence: “A tone is closer to the heart than a picture.” Nikolaus Lenau, who like E.T.A. Hoffmann was one of the minor German classicists (and would have known the importance of Beethoven, being his contemporary), writes in his *Waldliedchen*:

“There is a rustling like a dream  
Of songs in the trees,  
And with the waves  
Hidden melodies are played ...  

Voices that silence others  
Beyond their being heard  
Merlin hears glide by  
All rustles in a round-dance...  

The resonant moonlight streams  
Down on the oaks and roses,  
And in finest moss’s cup  
The eternal poem sounds.”

E.T.A. Hoffmann

In his mysterious novel *Ritter Glück*, Hoffmann writes: “Look at the sun, she is the triad from which the chords shoot down like stars and wrap you in fiery strands ... There, rays of light shone through the night, and the rays were tones, surrounding me with lovely clarity. I awoke from my pain and saw a great, bright eye, which looked into an organ, and as it looked, notes issued forth, and shimmered and twisted around in beautiful chords as I could never have imagined. Melodies streamed in and out ... I listened to the flowers singing together. Only one sunflower was silent, and nodded its sad head toward the earth. Invisible bonds drew me to it—it raised its head—its face opened, and from it the eye radiated upon me. Now the notes came forth, like light rays, from my head to the flower, which soaked them up eagerly. The sunflower’s leaves grew greater and greater—a glow came from them—they enveloped me—the eye had disappeared, and I was inside the flower.”

Paul Valéry

The great French poet Paul Valéry, in his dialogue *Eupalinos*, has Socrates say: “But music and architecture allow us to think of something else than themselves; in this world they are like the monuments of another world, or like examples scattered here and there of a structure and a duration that does not come into being, but into forms and laws. They seem intended as direct reminders for us, the one of the construction of the universe, the other of its order and steadfastness; they evoke images of the spirit and its freedom, which follows this order and reproduces it in a thousand different ways; thus they ignore the specific appearances with which the world and the mind are generally

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occupied, plants, animals, and people ... I have sometimes observed that when I listened
to music with an attentiveness equal to its polymorphism, to some extent I no longer
perceived the notes of the instrument as impressions upon my ear. They changed so
quickly and completely into living truths, into adventures of the universe, or into abstract
associations, that I no longer perceived the sensory medium, the tone, at all.”

Goethe

This section would not be complete were we not to consider the great monument
that Goethe, the seer and observer, has built to akróasis. The prologue in heaven to Faust
begins with the words of Raphael [George Madison Priest translation]:

“The sun intones, in ancient tourney
With brother-spheres, a rival song,
Fulfilling its predestined journey,
With march of thunder moves along.
Its aspect gives the angels power,
Though none can ever solve its ways;
The lofty works beyond us tower,
Sublime as on the first of days.”

And at the beginning of Act 1 of Faust II, “A tremendous tumult announces the approach
of the sun”:

Ariel: “Hark! The storm of hours is nearing!
Sounding loud to spirit-hearing,
Is the new-born day appearing.
Rocky portals grate and shatter,
Phoebus' wheels roll forth and clatter.
What a tumult Light brings near!
Trumpets, trombones are resounding,
Eyes are blinking, ears astounding;
The unheard ye shall not hear.”

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In Sections I through V of this Introduction we have covered documents of
akróasis from the most ancient times onwards, through all epochs and through the
religious, philosophical, and artistic domains, and let them into our psyche. A strict
system was in no way intended, and the selection was extremely limited. The lack of
examples from music would be unpardonable were it not for today’s situation, which
makes it impossible to impart the real tone to the ear via the book in the same way as the

179 Since I have not yet acquired the original text, I do not know what French word Rilke translated with
“Wesen” [Here Wesen is translated as “being” -Tr.]. Obviously Valéry does not mean Wesen here in the
sense of Wesenheit [= spirit, essence, substance]—this would completely contradict what follows—but
Wesen as sensory embodiment of the tone, the architectonic body, closer to the German word Lebewesen [=
living being, organism].

lvii
printed word does for the eye. Examples in notation only mean anything to those fluent in notation, while this introduction is intended to make its readers connoisseurs of akróasis and lead them to work on it themselves. Perhaps future technology will produce sound recordings made of paper or a similar substance, which could then accompany books. For now technology has not progressed this far, since it has many “more important” things to do. Otherwise, I would have included an ancient Judaic song, a Gregorian chant, one of Bach’s fugues, an adagio by Bruckner, and a phrase from one of Beethoven’s last quartets. With all these, the “sound of the world” resonates directly into the human psyche.

Should the unprepared reader, discovering harmonics for the first time, read the previous sections in succession, he might come to the conclusion that the author wishes to awaken, nourish, and solidify in him the belief that everything, the world and he himself, is nothing but “listening,” tone and sound. If, then, he were to object that one could present a similar multitude and series of examples of the eye, i.e. “looking,” whereby light, color, and visual forms play the equivalent role, then he would be completely right. And whoever wanted to undertake such work would probably have a much easier time of it; in any case, a wealth of previous works would be at his disposal, in fact the wealth of material—merely under the keywords “light” and “color”—is downright overwhelming.

But our task is justified precisely because the “optic” worldview is so familiar, while the “acoustic” worldview is hardly known and even less understood (“worldview” is really incorrect here, which is why I chose Weltanhörung = akróasis over Weltanschauung = aisthesis). Our work should not demonstrate that “everything” tones, but that “in everything, something” tones, including light, along with many other things of which we already know something, or of which we as do not yet know anything, or never will know anything.

Our examples up to this point, I believe, give a sufficient picture of how “akróasis,” as a Weltanhörung in the broadest sense, was a background for most cultures, disciplines, and arts from ancient times onwards: often only as metaphors and analogies, often again as symbols, and finally as a speculative doctrine whose main work from earlier times is lost; or else what remains to us is no longer “scientifically” usable; or else what was still scientifically usable and replaceable finally took refuge in other disciplines (e.g. astronomy with Kepler, classical studies with Thimus).

This book is intended to testify that akróasis, as the “doctrine of harmonics,” can be reestablished today and reconciled with our modern ways of thinking. In the following sections of the Introduction, for a fundamental study of this discipline, still new to our modern worldview, we will single out and discuss the three elements mentioned in the Foreword: harmonics as a science, as a doctrine of correspondences, and as symbolism.
VI.

Harmonics as a Science

The Ear

The physiological basis of Harmonics as a science is primarily in the ear. A precise description of the anatomy of the human ear and its evolutionary origin can be found in the relevant specialized works. In evolutionary terms, the ear as a trained organ is a relatively late development; but not so the sense of hearing, i.e. the living being’s acoustic perceptiveness, which goes back to the beginnings of the animal kingdom. If one considers, in addition to this, the most recent results of experiments with ultrasound waves, one can accept and assume that matter itself has a universal sensitivity to acoustic stimuli. “The Greeks believed the sense of hearing was the most ‘elevated’ of all, i.e. the sense through which the psyche received the deepest, most vividly stimulating impressions.”180 The ear, in its most highly developed state, is an extremely complicated mechanism, whose individual functions have still not all been completely explained. However, to mention only a few important elements, it is known that the so-called “basilar membrane”—a tiny structure of 0.8 square millimeters which transmits to the auditory nerve the tone-vibrations that are filtered, so to speak, by the eardrum and the oval window of the middle ear—is a technical marvel, compared to which even our most highly sensitive acoustic membranes are primitive hackwork. The center of the inner ear, the cochlea, has a spiral form. Harmonics is in a position to show, for the first time in the history of physiology, precisely why this central structure has this spiral form. The harmonic tone-spiral, and the spatial tone-spiral developed from it, show that the precise form of the cochlea is in no way accidental, but was ordained by creative forces according to tone-law and its geometric-harmonic evolutions. More or less puzzling still for physiology is the placement of the semicircular canals in the ear. They serve mainly as an organ of balance, but what does balance, and therefore spatial orientation, have to do with acoustics? Here, also, harmonics gives an explanation in the tertium comparationis of the spatial partial-tone coordinates, i.e. the tone-space built from the law of the overtone series, whose three coordinate axes correspond to the three spatial directions of the semicircular canals in the ear. “For the Gods, the four quarters of the world are the ear,” reads an ancient Indian text of the Satapatha Brahmana.181 Nature appears to have placed the inner ear so as to be particularly protected. It is surrounded by bones deep in our skull, making any surgery extremely difficult. The auditory nerve is in direct, close connection with the entire nervous system and the sphere of perception, just as the optic nerve is connected to the brain, the sphere of consciousness. To this is connected the fact that in general, people with damaged hearing are far more prone to psychic disturbances than those with damaged vision—a fact well known to every psychiatrist. Naturally there are exceptions, and one must also distinguish between congenital and acquired deafness. The two great exceptional cases of the latter affliction were Beethoven and Goya.

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181 Aus Brahmanas und Upanishaden, tr. by A. Hillebrant, Jena 1942, p. 22.
Beethoven

Anyone who knows the life history and work of the late Beethoven can clearly follow the great intensification of this work paralleling his progressing deafness. Besides the typical indicators of psychic disturbance in Beethoven’s personal conduct towards other people, in which paranoia is especially characteristic, it appears that the loss of his sensory hearing caused the entire strength of his genius to concentrate upon purely mental hearing, and thus conjured up visions of a previously hidden world, reaching the highest things granted to humanity.

Goya

Alfred Peyser writes of Goya in Von Labyrinth aus gesehen: 182 “If poetic fantasy deepened the shadows, in Goya’s case it is evident that the Master’s psychical life was decisively influenced by the loss of his hearing. He [like Beethoven] grabbed ‘fate by the throat’ and kept creating for more than 30 years afterward, but his works from this period predominantly reflect wrath and turmoil; we no longer see the images reminiscent of Gobelin tapestries, depicting the cheerful life of the Spanish people.” For the visual man Goya, the loss of hearing had an entirely different artistic effect from what it had on the auditory man Beethoven. For a future “philosophy of the senses,” a comparative analysis of these two cases would surely be productive. Of course, it must not be forgotten that both Beethoven and Goya originally had intact senses of hearing.

The Sensitivity of the Ear to Time Differences

The sensitivity of the healthy ear to time differences is of the utmost importance for harmonics. Time differences are expressed in the precision of the apperception of the most important intervals—octave, fifth, fourth, third, whole-tone—and the number-ratios corresponding to them. Of course, the ear is only a mediator here, and without the prototypical forms in our psyche, the octave, fifth, etc., there would be no holistic forms. But the ear makes us able to distinguish these time differences most precisely, and regarding the holistic forms of the intervals, to judge certain number-ratios spontaneously as tone-ratios, i.e. to apperceive exact forms directly as correct or incorrect, which we would otherwise be able to establish only indirectly through subsequent measurement or other manipulation.

Helmholtz

Regarding sensitivity to time differences, Helmholtz wrote in his Lehre von den Tonempfindungen: 183 “Compared with the other nervous apparatuses, the ear has a great superiority in this regard; it is, to an eminent degree, the organ of small time differences, and has long been used as such by astronomers. It is known that when two pendulums strike next to each other, the ear can detect down to approximately \( \frac{1}{200} \) of a second whether their strikes are simultaneous or not. The eye goes wrong at \( \frac{1}{24} \) of a second, or sometimes more, when trying to decide whether two light flashes are simultaneous or not.”

The ear, like everything else in this world, also has its limits. But anyone who has experimented on the monochord himself, and thus established that within an octave we

182 Zürich 1942, p. 201.
can easily distinguish not just 12 tones but hundreds of tones and tone-ratios as entirely separate psychic forms, will find Helmholtz’s statement to be completely supported.

**Euler**

Euler, in his *Tentamen novae theoriae musicae*, wrote of a “perception of the order” of tone-ratios. As regards the ear as a specialized organ for the spontaneous apperception of certain number-ratios, and the psychic arrangements connected a priori with them, this ability is constantly trained and practiced by every piano tuner and stringed instrument player—indeed by every practicing musician and listener, and above all by every composer. The task of harmonics is to clarify the laws behind this and interpret their meaning. But at this place, harmonics steps out of the special case of music alone, and expands to become a universal doctrine of akróasis, of Weltanhörung.

**Universality of Harmonic Number-Ratios**

The universality of the harmonic number-ratios is initially based upon our tone-perception, irrespective of whether our ear hears these ratios with complete or partial precision, or of whether people have been able to hear pure tone-ratios since the earliest times or have acquired the ability gradually. All laws, indeed, start as ideal cases, which must then find their verification in fact, although this verification is only ever attained approximately. Today, for example, it would not occur in physical optics to make the optic laws discovered over the course of time dependent on whether the eyes of all people at all times saw or evaluated these laws exactly as modern physicists do. The same goes for the laws of acoustics, and of course for those of harmonics. The universality of harmonic law is therefore initially, like every law and norm, only a postulate, an ideal. The task of the relevant discipline, in our case harmonics, is to find the proof of universality in as many individual cases as possible.

If we understand the acoustic in the familiar broadest sense, it is evident that the ear as a receptive organ has a substantially greater significance in modern times than before. Radio and gramophone records alone have widened the acoustic field so enormously that we almost find ourselves in need of an inner defense against them. Despite this, no insightful person would want to dispense with the positive aspect of these inventions; and from this very discrepancy emerges the requirement of turning our renewed attention to the acoustic, the auditory, in the broadest sense.

The task of harmonics as a science, then, is primarily to illustrate the order of the tone-ratios. Here one must refer to a fact that may sound somewhat unfamiliar to “physical” ears, but which is nonetheless true: *Science as yet knows of no system of tones!*

**System of Tones; Importance for Physics (Acoustics)**

By this I do not mean a “tone-system,” a term that belongs in music theory and has purely theoretical-musical significance with regard to the tonal material from which music is made today as it was in earlier times. It would be better to say that acoustics, as a division of physics, still knows no system of tones. Physical acoustics has examined and theoretically established many individual phenomena—such as the dispersion of sound waves, the emergence of sounds, the law of the overtone series (tone-color theory), Fourier’s series, resonance theory, and many others. There is, of course, also a universal

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184 Petersburg 1739, p. 6.
theory of vibration that applies to phenomena in the acoustic, optic, and electromagnetic domains of physics. But an actual theory of tones, built upon a system of tones, is not yet known to physics, and I hold this deficiency to be one of the reasons why in most modern physics textbooks, the chapter on “acoustics” as a separate entity has disappeared, and the relevant individual acoustic phenomena are treated as paradigms of the general study of waves.

Here harmonics enters the arena of scientific research. In 1868, A. von Thimus, on the basis of his rediscovery of the ancient Pythagorean Lambdoma, made this system of tones accessible again for the first time in the modern era. Thimus examined this “Tabula Pythagorica”—presumably the “abacus” of the ancients—mainly with regard to its algebraic and tonal laws; for the moment, we will not discuss the symbolic interpretations he drew from them. But this “Lambdoma,” which I call “partial-tone coordinates” and which the reader will find developed in §20 of this book, is nothing other than a strict group-theoretical continuation of the overtone series according to its own inherent law. Remarkably, this discovery, so exceptionally valuable for acoustics and tone psychology at the time it was made (1868), went completely unnoticed by the specialists of the field. I would have expected Helmholtz, for example, to have adjusted the later editions of his *Lehre von den Tonempfindungen* (1st ed. 1862) to Thimus’s rediscovery of the Pythagorean tone-system—which is indeed based upon the linear overtone series—all the more so since Helmholtz had a great understanding of Pythagoras and the pure-tonal ratios. Surely he never acquired A. von Thimus’s *Harmonikale Symbolik*, or else, as an outspoken anti-metaphysicist, he was frightened away by the title and remaining content of the book. But why are we speaking of times past? Today, 80 years later, the situation has not changed: neither the tables in Thimus’s works nor those in mine (beginning 1932) have attracted even the slightest attention from physicists, although they could have made this discovery mostly on their own, and thus been able to build the “tone-system of acoustics” on a new, secure foundation.

**Comparison**

To clarify the progress of the harmonic system of tones in contrast with the physical-acoustic attempts to bring order to the tone phenomena, I can offer the following examples. Every reader of this book will already know something about atoms and chemical elements. They are the basic components from which matter is made. Today about 90 of these elements are known. Hydrogen, with the symbol H, is the lightest element, followed by helium as the second lightest, and so on. Earlier, the series of atomic weights was arranged linearly, just like the overtone series. Chemists knew that certain elements would combine with each other in certain ways, just as musicians knew that certain tones in the overtone series could be combined into intervals and chords. But there was no insight into the law governing the arrangement of all the atomic weights among themselves. Things changed completely, however, when the physicists Meyer and Mendeleyev had the idea of arranging these atomic weights in groups. They broke up the series at certain points and placed some sections beneath others. The result is now known as the “periodic table of the elements.” This arrangement provided a surprisingly deep insight into the laws governing all the elements and their relationships with one another. A few spaces were empty at the time (as dictated by the arrangement), and the characteristics of the as yet undiscovered elements could be predicted almost exactly.
And it would not be wrong to give credit to the discovery of this periodic system for the enormous progress subsequently made by chemistry and atomic theorists. This periodic table of elements, however, is obviously a purely mental arrangement of a natural phenomenon, in this case that of the atomic weight series. Nobody found this system outdoors, buried in a mineral mine, or indoors, in a laboratory beaker. Although its implications and indications are hugely important for practical chemistry, in reality it does not exist at all!

Harmonists did something very similar 3,000 years ago. Through simple monochord experiments, they must have learned very early on of the linear partial-tone series with its simple number law. And one day, an ingenious mind came upon the idea of interpreting this partial-tone series that he had found on the monochord, which is indeed identical with the overtone series. He calculated, from this partial-tone series (1 1/2 1/3 1/4 etc.), new partial-tone series, using the individual fractional values to start new series. Then he placed some beneath others, and thus the “periodic table of tones,” or the “Lambdoma” as the ancients called it, or the “partial-tone coordinates” as I call it, was discovered. I recommend that the reader consider this comparison of the periodic table of elements with our harmonic system of partial-tone coordinates in the same way that all comparisons should be considered: as a parallel, incomplete but touching upon the innermost core, between a well-known phenomenon (periodic table of the elements) and an as yet unknown phenomenon (partial-tone coordinates).

Thimus, as has been remarked, found only the first, one might almost say the most primitive, laws of the Lambdoma. All the more astonishing is what he was able to do with his few formulae in terms of an interpretation of various symbols from the traditions of ancient wisdom. The actual fruitfulness of the Lambdoma begins with its redevelopment, through the tone-number groups and the partial-tone coordinates up to their construction in tone-space, which last is investigated and illustrated, for the first time, in §37 of this book. It is in this spatial formation of the tone-system that the most peculiar configurations of tone-number groups appear, which mathematics will have to deal with using new concepts such as the “geometric discontinuum.” Acousticians and music theorists, especially, will find a wealth of material there, whose strict logic will repeatedly lead them back to the universal harmonic system of tones. With this system, a new era also begins for music theory.

Importance for Music Theory
Today’s music theory, just like acoustics, lacks an arrangement of tones allowing it to derive the most important musical phenomena, such as the whole-tone, scale, counterpoint, cadences, a legitimate coordination of the chordal to the melodic, etc. In the harmonic system of partial-tone coordinates, we have this arrangement. Since it can be demonstrated on the monochord, its factual nature is beyond dispute. Here, also, it is just as remarkable as it is incomprehensible that all “official” music theory and musical science, with few exceptions, have paid no attention to these things—to their own disadvantage. In my experience, these circles are dominated by an astonishing ignorance

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185 For example, Grundriß der Harmonielehre, by Basel Conservatory Director W. Müller von Kulm (Amerbach-Verlag, Basel 1948), which appeared after the completion of this Textbook, and the course “The Pythagorean Tradition,” organized by Ernst Levy, Professor of Music at the University of Chicago in winter 1948-49.
of the most basic acoustic and mathematical phenomena. Today books are still appearing on harmony, tone psychology, tone character, etc., which either completely ignore the mathematic-acoustic data on which fundamental elements of music rest, or handle them using tools from the dustiest, stalest physics textbooks—without making any mention of the results of harmonic study, which would provide the real foundation for their work. So something is wrong here. The reasons are obvious: all these proponents of music theory and musicology are lacking in mathematic-acoustic education. Future musicologists and music theorists will have to acquire this education and work with the results of harmonic study, otherwise there is the danger that their works will become out of date while still in manuscript, and be superseded before they are published. A further reason for the “horror” that music theory and music psychology have hitherto had of harmonic discoveries is the widespread superstition that the overtone series, being a simple natural law, is not suited for eliciting psychological laws. But who will claim in earnest that the overtone series is only a natural law? Are not the intervals of its primary ratios anchored in our psyche, just as outside in nature? The intervals at the beginning of the overtone series—the octave, fifth, fourth, major and minor third, whole-tone—are they not spontaneously perceptible by our psyche as correct or incorrect? Be that as it may: in the following work it will be proven that many phenomena that were previously only understandable “psychologically,” such as scales, counterpoint, cadences, etc., can be derived directly from the harmonic system of tones. Here it can also be said that music theory, by the same token as physics, only harms itself by clinging to its aged and doctrinaire standpoint. But with this rediscovery, reestablishment, and further development of the harmonic tone-system, as yet unknown to modern physics and musicology, harmonics as a science is not yet exhausted.

“Sound-Image”; Audition Visuelle

An entirely new domain opened up by harmonics is the so-called “sound-image,” i.e. the conversion or metamorphosis of acoustic tone-forms into optic, graphic images. As a collective term for this domain, I have chosen the term “audition visuelle,” in conscious parallel to the concept of audition colorée (color-hearing), which plays a well-known role in synesthesia. As for audition visuelle, it owes its possibility and emergence to the fact that every tone can be expressed as a number, spatially (string length) or temporally (frequency), and can thus be illustrated graphically as a line. This applies both to the individual tone-ratios and to the tone groups and tone curves, as well as to all polar illustrations of acoustic phenomena and configurations. Tone curves and acoustic polar diagrams are investigated, mostly for the first time, in my works, and are most extensively illustrated in this book. In these “sound-images” of audition visuelle, the acoustic is thus transcribed into the visual: here we can see the tones, not as a simple conversion of acoustic vibrations into optic vibrations, such as is possible with electrophysical instruments, but as a transformation of the tone-numbers and their configurations into visual diagrams. This is something fundamentally new, different, but still completely workable within our “scientific” way of thinking. I have especially shown how fruitful these sound-images can be—fundamentally, every harmonic diagram is one—in two scientific examples of application: in the example of the “partial-tone
curve,” which turned out to be a constitutive element of the shape of the violin body,\textsuperscript{186} and in the “harmonic division canon,”\textsuperscript{187} significant for the history of art. The application of sound-images in the harmonic doctrine of correspondences and symbolism is given in many places in the following work.

**Ultrasound**

Recently “ultrasound waves” have become very important. These are tones of extremely high frequency, which we cannot hear, but which have a special effect, analogous to that of ultraviolet light waves, reaching into the atomic building blocks of matter. They are used in medicine as “ultrasound radiation.” In my essay “Tonspektren,”\textsuperscript{188} I showed that the harmonic tone-system and its laws not only reveal a whole series of close analogies to the laws of the optic spectra, but also that retrospectively, some hitherto unexplained phenomena of the optic spectra can be solved by means of the tone spectra—which are actually only special cases of the harmonic tone-system. Obviously, the harmonic tone-system points to a deeper, universal law for which the “medium,” air or ether, is secondary to the norm governing it. If today’s “first trials” of ultrasound waves reach into those domains that belong to atomic research, and if, as I showed in “Tonspektren,” there is a close connection between optic-atomic and acoustic laws, then future ultrasound research, if it is to have a theoretical basis, will be forced to rely upon the harmonic tone-system. Here another wide and fascinating field of activity is awaiting harmonics as a science.

**Gestalt Mathematics**

Other domains for a purely scientific handling from the harmonic viewpoint, to which the above examples have already pointed, are language and mathematics, among others. Regarding language, the harmonics of the form, melody, and rhythm (poetry) of speech must be examined, as well as writing; and as for mathematics, I see harmonic efforts in this field crowned with the emergence of a “gestalt mathematics” (see §4a and §36b), building the tone-number forms and their formulae and configurations into an autonomous, self-validating branch of mathematics. Unfortunately, my knowledge of this domain is too limited for me to offer anything profitable. As far as I can see, it requires an expert in group theory to establish gestalt mathematics on a harmonic basis; the starting point will always be the overtone series with its tone-number groups and geometric forms.

Here I believe I can skip the discussion of “harmonics as a science,” such as the “law of harmonic quantization”\textsuperscript{189} and many other things. In this section VI, I wish merely to show that harmonics has contributions to make within the “scientific” way of thinking familiar to us today. The reader will find many other examples in the chapters that follow. By “scientific thought,” I mean the attitude, of research and of the researcher, that would be considered “housetrained” within today’s university disciplines.

\textsuperscript{186} See my harmonic study, *Die Form der Geige, aus dem Gesetz der Töne gedeutet*, Occidentverlag, Zürich, 1947.
\textsuperscript{187} See *Ein harmonikaler Teilungskanon*, Zürich, 1946.
\textsuperscript{188} In *Abhandlungen zur Ektypik harmonikaler Wertformen*, Occident-Verlag, Zürich, 1938 (1946).
\textsuperscript{189} See §13a and §19.
Scientific Thought; Hermann Friedmann; “Haptics”

Regarding the relationship of akróasis as a whole to scientific thought, one must first be clear about the heredity and origin of this thought. From Hermann Friedmann, we know that this thought is “haptified” in its fundamental structure, i.e. oriented to the mode of thinking of the natural sciences, especially as it has developed since the Renaissance. With harmonics, we dismantle the foundations back down to these “haptics” (= perception of the sense of touch, with its supporting pillars of measure and number), namely to Pythagoreanism itself. Of the two original approaches of Pythagoreanism, tone and number, only the numeric, haptic aspect was subsequently developed as a basis for all further scientific research. Naturally this did not exclude religion, philosophy, and art in all their manifold forms. But the specific mode of thinking of the natural sciences, especially as it has solidified in the last two hundred years in the exact sciences, and above all in the haptic science par excellence—physics, and the technology born from it—has become such a dominant influence over all domains of science, our entire thought structure, and almost our entire lifestyle (civilization, comfort), that we would do well not to close our eyes to this haptification and to see it for what it is: a completely unnatural advancement, exceeding all human proportions, of a very one-sided tendency, whose overpowering virulence, in the atomic bomb, has given its first great warning signal, or—if people do not take notice of this “human” invention—its last men tekel.

“Mensura is the primal function of the mens! We only grasp nature where we can measure, count, or weigh”—Nikolaus Cusanus knew that. But “Cusanus discovers consciousness as that domain of the spirit (mens) that deals with more than rational verdicts and conclusions, numbers and measures, namely with higher things, ‘ideas,’ such as unity and wholeness.”

Science and Harmonics

The relationship of harmonics to modern science can be summarized in the simple statement: Not measure and number, but measure and value! That is what modern civilization cannot avoid if it wishes to become a culture once again. This does not mean putting measure in one place (science) and value in another (religion, philosophy, art), but revitalizing the scientific way of thinking with both of the Pythagorean approaches, i.e. with the reintroduction of psychic principles and norms (tone) into the currently purely haptic way of thinking (number). Thus scientific thought will not only regain human warmth and humane responsibility, but also the domains currently outside of this thought, such as religion and the arts, will again be connected with scientific thought by the symbols of the harmonic value-forms, and thus relieved of their splendid isolation as activities for holidays and leisure time. The possibility of this revitalization lies in the primal phenomenon of tone-number and the norms and laws coming from it, and harmonics is the study of the transformation of this possibility into reality.

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190 Die Welt der Formen, 2nd ed., Munich 1930.
192 Ibid., p. 256.
VII.

Harmonics as a Doctrine of Correspondences

Jakob Böhme

The second founding pillar of akróasis is *Harmonics as a doctrine of correspondences*. We can characterize today’s predominantly haptified mode of scientific thought with one of the many sayings of the deep and sharp-sensed *philosophus teutonicus* Jakob Böhme: “For that is the law of conceivability, that it does not emerge in the inconceivable.”¹⁹³ But there is another kind of thought, or rather another attitude of our thought and feeling, which is structured differently, and precisely for that reason exists outside the merely conceivable, the conceptual: the doctrine of correspondences. In my book *Akróasis*,¹⁹⁴ I tried to depict this mode of thought in connection with Ernst Cassirer. Admittedly I find his chosen term, “mythical” thought, too broad, since mythology already crosses over into symbolism, which latter covers deeper areas than are possible for a mere doctrine of correspondences. Despite this, we will use this term.

Ernst Cassirer; “Mythical” Thought

The philosopher Ernst Cassirer contrasts the conceptual form of “mythical” thought with modern scientific thought. He characterizes mythical thought as associative thought, in which individual analogies relate to each other in external, often arbitrary ways. “The Mythos, as long as it does not remain in the realm of undefined ideas and emotions, but develops in objective forms, is also a kind of form-giving, a direction peculiar to objectivization, which in a very specific way contains the ‘synthesis of the manifold,’ the integration and reciprocal arrangement of the sensory elements.”¹⁹⁵ The most primitive form here is totemism, “which is not merely a principle of social structure, but a universal principle of world-arrangement, and thus includes worldview and world-understanding. Not only the tendrils of the root, but the entire universe ... is put, by the totemistic way of thinking, in groups, which are connected to one another or separated from one another through certain kinds of relationships.”¹⁹⁶ For the Zuni people, for example, there is a “septuarchy,” a sevenfold arrangement of their entire thought and lifestyle: “The Zuni village is divided into seven areas corresponding to the seven directions: North, West, South, East, the upper and lower worlds, and lastly the center of the world. Not only every separate clan of the race, but also every animate or inanimate being, every thing, every process, every element, and every definite time period, belongs to one of these seven areas ... every spatial domain has its own specific color, number, etc.”¹⁹⁶ The principle is the same in astrological thought, and in mythology in general, which always latches onto a “material part” of the world (the cosmic egg of the Orphics, the primordial ash tree of the Germans, etc.) and then links association to association in a chain, in which causality (cause and effect) merely plays an external role of

¹⁹³ *Aurora*, 16, 39.
¹⁹⁴ Benno Schwabe-Verlag, Basel 1946; Gerd Hatje-Verlag, Stuttgart, 1947, p. 87 ff.
¹⁹⁶ Cassirer, *Die Begriffsform*, etc., pp. 17, 22-23.
interrelationship. The mythical worldview is statically, spatially oriented, and thus predestined for rigid images and symbols.

**Scientific Thought**

The modern scientific worldview is completely different: “The form of the scientific explanation of nature, the main principles of which have stood irreversible since the Renaissance, since Galileo and Kepler, mainly consists of unraveling all Being into Becoming, into spatial-temporal relationships, and using the laws of these relationships as a basis.”\(^{197}\) Further: “In the mathematical theory of natural events, which expresses these ideas the most purely and completely, all content and all events must first be converted into a complex of quantities that are generally regarded as changeable from moment to moment, in order for the explanation to be accessible at all. The task of the theory, then, is to ascertain how all these changes affect and dictate each other.”\(^{198}\) And: “That is why our modern scientific thought, in order to be able to conceive of any kind of Being, must first relate it to elementary changes and, as it were, break it down into them. The form of the whole, as it is present for sensory perception or for pure observation, disappears: in its place is the idea of a specific regulation of Being.”\(^{199}\) And then, Cassirer compares modern thought to astrology, as one of the models of mythical thought: “The unity that modern science seeks is the unity of the natural law as a purely functional law; for astrology it is the unity of a constant and pervasive condition, a structure of the universe.”\(^{200}\) And at another point: “Science’s idea of law find such a correspondence [between two psychic elements], not where [as in mythology] the elements somehow correspond to one another, and where they can be mutually connected within a definite scheme, but instead where specific quantitative changes of the one dictate those of the other, according to a universal rule.”\(^{201}\)

We should pay special attention to this last sentence. What Cassirer means by “scientific thought,” of course, does not apply only to science, but *mutatis mutandis* to all modern thought, including philosophy (“philosophy as a science”), art, and religious studies, since causal-functional thought plays the lead role in these domains as well.

**Relationship of Harmonics to “Mythical” Thought**

Harmonics and mythical thought immediately appear to be closely linked. Harmonics is also a discipline of correspondences; every harmonic value-form is, so to speak, a convex lens for a whole series of coordinations, which have little or nothing to do with each other outside the lens. But it is precisely this image in the convex lens that brings the fundamental difference between mythical and harmonic thought into focus. According to Cassirer, mythical thought always starts with some real image-concept (world-egg, primordial ash tree), and then adds further image-concepts onto it, which appear to our modern way of thinking, just like the initial symbol, to be more or less arbitrary connections, or at least external ones. Harmonics, on the other hand, does not begin its series of correspondences with any arbitrary symbol such as a world-egg, but

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\(^{197}\) Op. cit., p. 32.  
\(^{198}\) Op. cit., p. 32.  
\(^{200}\) Op. cit., p. 34.  
\(^{201}\) Op. cit., p. 44.
with a harmonic value-form (prototype) whose initial theorem is anchored psychophysically in nature and in our psyche, and as such is suited to the criteria of understanding (number) and feeling (tone), and can thus be judged and evaluated abstractly and concretely. The correspondences radiate outwards from these convex lenses of harmonic value-forms as though toward the periphery of a circle. Viewed by themselves, without the focus of the lens, they appear just as “arbitrary” as in Cassirer’s mythological thought, but with the lens they are arranged in our causal way of thinking, and are a function of precisely these prototypes or value-forms. Here are some examples:

**Harmonic Examples of the Doctrine of Correspondences**

The following facts are known: In the growth of crystal surfaces, the following numbers usually appear:

\[ \ldots \frac{1}{4}, \frac{1}{2}, \frac{2}{3}, 1, \frac{3}{2}, 2, 4, \ldots \]

If we place beneath these numbers the tone-values:

\[ c, c\,, \, f, \, f, \, g, \, c', \, c'' \]

then in the tones \( f, c, g \) we have the functions subdominant-tonic-dominant, upon whose movement the chords of Classical, Romantic, and modern music are based.\(^{202}\) If we imagine the inner movement of the cadence autonomously, as the positioning of thesis, antithesis, and synthesis, then we find ourselves in the domain of logic, where this triadic movement signifies the prototype of dialectic. Here, then, we have three instances from crystallography, music, and logic, which have nothing to do with each other practically, and cannot be derived from one another causally, but whose inner form or character is analogous and can be traced back correspondingly to the harmonic prototype of “step-dialectic” (in musical terms: cadencing).\(^{203}\)

Another example: The blossom of the passionflower has five regularly divided stamens, upon each of which is a pistil, also regularly divided into three. \( 5:3 \) or \( 3:5 \) is the minor third, whose importance (as well as that of the major third) in the two-part singing of folk songs, and as a typical interval of “romantic harmonics,” is well known. If we imagine the third-interval autonomously—it is the fifth tone of the overtone series—the we remember the Greek letter \( E (= 5) \), which stood at the entrance of a temple at Delphi and about which Plutarch wrote an entire essay; we will also remember the pentacle, which produces the golden section, and so forth. Here, then, we have four instances from botany, music, mythology, and mathematics, which have nothing to do with one another factually and cannot be derived from one another causally, but whose inner form or character is analogous and can be traced back correspondingly to the harmonic prototype of the third-interval.

One might now ask: “What should I do with such correspondences? What is the advantage over the causal method?” As a harmonist, I will give the following answer:

\(^{202}\) See my *Grundriß*, p. 269.

\(^{203}\) Ibid., p. 182 ff.
Causal and Correspondent Modes of Thought

The causal mode of thought leads all too often to a false certainty, to an attitude of self-evidence, to a sacrifice of experience in favor of established facts and laws. All great scholars and explorers of this thought (Max Planck, etc.) made it clear that any science is only ever approximately “true,” and that in pure scientific thought, no conclusive results or truths are to be expected. Moreover, for all these scholars, most of the experiential content was retained. But the great majority of their colleagues, and laypeople, came all too easily to believe, as regards science, that “truth” is to be found only here, within the causal-scientific mode of thought, and that when these truths are set before them, everything is completely clear and self-evident, and they have fundamentally “gotten there.”

While scientists are driven restlessly from one result to the next (Max Planck, in his speech at Vienna, March 3, 1929, spoke of the “goal, unreachable in principle, of a knowledge of true reality”), and an individual discovery is often able to shake up an entire, supposedly well-established “worldview” (case in point: classical and modern physics), the layman, and not only he, is stuck with the illusion that contemporary research produces conclusive truth, that it can be built upon, and that any doubt is forbidden, indeed utterly ridiculous. Since the current results of this research are believed to be “factual” and “objective,” and there is a panicking fear of “psychic” references or of trespassing into other domains, this “haptification” affects researchers and laypeople as an accumulation of scientific material that is lacking any psychic relationship to humanity as a whole, and leaves the seeker of truth fundamentally unsatisfied—regardless of the element of uncertainty that he sees and feels as a result of the continual “revisions” of the scientific worldview.²⁰⁴

The doctrines of correspondence, on the other hand—of which harmonics is only one of several—begin with experiential content (in the above examples, the dynamics of cadences and the psychic content of the third-interval) and then seek the domains in which satisfactory analogies to this primary experiential content can be found; in harmonics we call it prototype, or harmonic value-form. The thinking here is not aimed at cause and effect (proof), nor at a “goal unreachable in principle”; instead, the experiential content of the initial position is extended and transferred to the “corresponding” analogies. From this, a fundamentally different viewpoint emerges within our capability of perception. In scientific thought, we find a restless desire to know, pursuing an ever unattainable goal, connected to supposedly “conclusive” results and an ever sharper focus on pure logic as its tool. In the doctrines of correspondences, we find calm introspection and a hearkening to the convergence of fundamental prototypes and value-forms, connected to ideas in the Platonic sense, these ideas being focused upon the “intellectus archetypus” (Kant) of our psyche.

Both modes of thinking and viewing, the scientific and the correspondent, arrive at truths, if we take “truth” to mean the appeasing of our striving for knowledge. But in the two cases, these truths are anchored and structured in different areas of our psychic capability. I personally would be wary of a face-off between the two domains. It is unquestionable that the causal-scientific way of thinking has its great and permanent uses, and will continue to have them. But it will have to get used to the fact that there are other approaches for our perception to the eliciting of the “truth,” and that if it really

²⁰⁴ See “Tagebuch vom Binntal” in my Abhandlungen.
understands the serious doctrines of correspondences, it must see them only as siblings, working together with it to mediate the truth. And there is more: every doctrine of correspondences, if it is to be taken in earnest—which is why I use the word “serious”—must use “scientific” means to ensure that its starting positions are unobjectionable. Certainly we harmonists place great value in the fact that our theorems, upon which the prototypes and value-forms are built, are grounded in measure, number, and the usual criteria according to scientific methods. Only then may observation and listening be set free and give themselves up to meditation on the series of correspondences.

We will now resume the thread of the above discussion with Cassirer. For the real doctrines of correspondences, and especially for harmonics, there are not simple arbitrary assignations, as in mythical thought, but instead these assignations show themselves as causally supportable image-concepts of a specific psychophysical form: that of the relevant harmonic value-form. If we think this through correctly, and look again at Cassirer’s definition of mythical thought, the question arises: shouldn’t it be possible to understand all these assignations of mythical symbols and image-concepts—naturally only as far as concerns the real ancient universal images, and not obvious nonsense—in such a prototypical, value-formal way? Certainly, from the harmonic point of view much of so-called numerology is already psychologically dictated, emanating from certain tone-number forms already present in our psyche. For example, the above mentioned “septuarchy,” the sevenfold system of the Zunis, superficially seen as a “wild” totemic hierarchy of assignation, has a psychic foundation that is harmonic (7 as the first number of dissonance, the seven-step scale as a prototype). The same goes, among others, for the doctrine of astrological aspects, which has been explained since ancient times, and later by Kepler, by means of musical intervals, i.e. psychic forms. Furthermore, it can be harmonically proven that the “object concept” of the world ash tree, mentioned above by Cassirer, is based on the image-concept of the “tree” that is common to almost all mythologies and religions (tree of paradise, etc.): it can be elicited directly from dichotomy, i.e. the division of the “partial-tone coordinates,” and therefore corresponds to a specific fundamental structure of our psyche and our ability to think (dieresis of the Platonic ideas). Thus “mythical thought” would not be merely a kind of imperfect prelude to our modern scientific thought, but completely equal to it as a human endeavor for truth, albeit structurally different. Cassirer, moreover, comes to the similar conclusion, on the basis of his theory of the various “modalities” of our thinking ability, that the various forms of thinking are in a way equal, though differing in nature. Moreover, as appears from the passages quoted above, he makes his position clear on the pros and cons of the two types of thought: above all, modern thought must first “break apart” before it can rebuild, and even then it will arrive only at “certain rules of Being” whereby “certain quantities dictate other quantities following a universal law,” and “the form of the whole, as it is present for sensory perception or for pure contemplation, disappears.” Naturally Cassirer assumes, like all thinkers of his type, that modern science has conquered mythical thought, but that a true conquest of the latter must rest upon knowledge and acknowledgment of it, since no matter what, it is still there.

Harmonics, then, has an important mission: to reintroduce the “harmonic value-form” into scientific thought, not as an antiquated doctrine of correspondences to be

205 See §50.

conquered, but as a new psychic structure of our scientific perception, verifiable by means of number and causality. The mythologem, symbol, etc., thus appear not merely as a form of perception that once existed and was historically equivalent to our modern thinking, but is irrelevant today: rather they are just as important as this modern thinking and still of value today, always assuming one can understand them causally and fit them into modern ways of thought. This avoids, above all, the danger of the mythologems being swept under the rug. To banish spirits, one must first summon them; and harmonics may have a similar mission to fulfill in the domain of science as depth psychology has within psychology.

Besides this fundamental debate with Cassirer, from which I believe the new justification for a doctrine of correspondences emerges under harmonic auspices, there are at least two examples in modern times of correspondence-based thinking: Fechner’s *Zend-Avesta* and modern Gestalt theory.

**Thomas Fechner**

G. Thomas Fechner works primarily with analogies in his *Zend-Avesta*. The earth, as a higher spiritual being, is in the middle between humans and God. The stars are conscious beings, the earth itself is an “angel.” *Zend-Avesta* means “living word,” everything speaks to us, and the analogies rise in hierarchical stages from familiar things and concepts up to the highest peak: to God. “In the step-by-step construction of the world, there is always a fixed corporeal system from above, and thus a consciousness always encloses the world below, and keeps it connected with omniscience in God.”

The natural science of Fechner’s time shrugged its shoulders at this work and declared him a “muddlehead,” whilst for the theologians Fechner’s thoughts were too “materialistic.” If we modern people regard his work without prejudice, we can see that the verdicts of both the scientists and theologians of 100 years ago were wrong: this is not merely a matter of knowledge or belief, but of a synthesis of both, on the basis of a different kind of thought, a gradation of correspondences. Asking, about such thoughts, “Is it all true, what Fechner says?” is like asking whether a work of art is “true.” All art produces analogies in the deepest sense, and all works of art stand upon the background of correspondences. I do not mean this in the sense of “allegorizing,” but entirely concretely with regard to the inner construction of the artwork itself. The formed idea is not realized in art by means of cause and effect (causality), nor by pure feeling forms (belief), but on the basis of correspondences of artistic inspirations and their evolutions. Here, the result is “truth” just as in Fechner’s *Zend-Avesta*; only this truth reaches into other levels of our capabilities of consciousness and contemplation than those of the scientific and religious attitudes.

**Gestalt Theory**

Another type of correspondence thinking occurs in the various directions of modern Gestalt theory, Gestalt philosophy, and Gestalt psychology. In Gestalt

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207 See p. 45 ff.
psychology, for example, a series of “Gestalt laws” are elicited on the basis of certain predominantly optical phenomena, such as “the law of containment,” “the law of common movement,” “the law of the good curve or the common fate” (!) and others, which are not restricted to the initial domain, but have application and correspondence in all possible domains, and thus are fundamentally analogized. The advantage of Gestalt psychology over Fechner is that it bases its laws on definite experiential conditions and universalizes them abstractly—similarly to what harmonics does with its theorems and value-forms.

I gave these examples of modern correspondence-thinking only to show that harmonics as a doctrine of correspondences is in no way an anachronism today, and indeed is in respectable company. Its specific nuances, in comparison with the two doctrines mentioned above, would require similar explanations to those we have already expressed regarding Cassirer.

The Difficulties of Doctrines of Correspondences

Of course, one must be aware of the general and specific difficulties of doctrines of correspondences. We are not on such “solid” ground here as exact scientists, logicians, or believers. Misunderstandings and mistakes are given wider leeway than on the hitherto trustworthy paths of familiar thought. To give the reader an impression of these difficulties, here are examples from my own works:

Two Harmonic Examples

In Hörende Mensch, p. 191 ff., and in Akróasis, p. 132 ff., I compared the base 10 logarithms of the median planetary distances (average distance between the sun and Mercury = 1) with the most accurate primary senary base 2 partial-tone logarithms, and thus came upon an octave-reduced scale, half major, half minor in character, and upon a remarkable localization of the first enharmonic steps d d’ and b b’. The shattered fragments that are asteroids are between d and d’, Jupiter outside b and b’, but still within the domain of the b value. I concluded from this that the dangerous area within the first enharmonic domain of division must have resulted in the fate of the original asteroid-planet, which would otherwise be in the position of the major third; and I was reminded of the legend of Lucifer, the angel who was at first noblest of all, then was destroyed—while Jupiter remains outside the second enharmonic division zone.

One of the first critics of this harmonic analysis argued as follows: it would be presumptuous to attribute the evil of the world to its fitting or not fitting into a scale! A scale has nothing to do with planets and their distances. My response—that Plato used the same analogy for his theory of the cosmos in his Timaeus scale—was answered thus: Plato, as an artist, was allowed to do this, meaning that with Plato one never knows where he stops being in earnest and where the fun begins. So, Plato was a joker—conveniently enough, whenever he is not understood today! See above for the evaluation of a harmonic analysis and the constitutive character of its correspondences as an answer to this objection.

Another, I believe, well-meaning critic made more pertinent objections. First, the connection of the tones to the median planetary distances is equivocal, since each of the 12 (tempered) tones of the scale has a variation breadth of \(\frac{1}{12}\) and thus other tones could

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lie within these tolerances; secondly, it is entirely clear that some kind of scale must arise from comparing 9 planets with 12 tones. The first objection is only valid if I am thinking in “tempered” terms, subtly introducing the concept of “variation breadth.” But in such analyses, harmonics thinks or perceives in terms of pure-tones, and thus the fifth and the octave have no “leeway” as intervals, as every string player knows when he tunes his instrument. There is only “variation breadth” in the intervals that follow afterward— third, second, etc.—and for these it is limited, certainly not $\frac{1}{12}$ of the octave! The second objection would, again, be obvious from the point of view of “tempered” hearing, but absolutely not from the pure-tonal viewpoint. Because as it is clear that a scale, more or less, must emerge from 9 planets and 12 tones, thus it is evident that there must be senseless and sensible nuances of this (pure-tonal) scale. And it was the peculiar character of the scales I analyzed that set them apart from the other, senseless ones. The critic, however, either did not notice the most important part of my analysis, or else it appeared unimportant to him: first, the ratio of the two logarithm systems, base 10 : base 2, which harmonically signifies the interval of a third. But the third (5 or $\frac{1}{5}$) is the number of the Earth in harmonic symbolism, the interval of type. And secondly, the location of the asteroids between the first two enharmonic steps, and the location of Jupiter near the second pair, which are always especially significant harmonically: compare to this the peculiar correspondence of the harmonic sphere of the head to the harmonic sexual sphere in the “sound-image of primal man,” §38a.2. For someone who thinks “uniformly,” i.e. temperedly here, and to whom correspondences such as the last two points mean nothing, this type of analysis is like an empty page with no clue how to begin.

A second example: my harmonic analysis of the Pythagorean triangle with the sides 3, 4, 5 and the square numbers 9, 16, 25, whose permutations yield the chromatic scale. Here the same critic objected that it “also works with other triangles,” if their sides have the triadic ratio $3 \cdot 4 \cdot 5$, e.g. with a triangle with sides 4, 5, 6 and the squares 16, 25, 36, etc. Obviously it “also works” with these and many other triangles. As harmonists, however, we think not uniformly but morphologically, and thus, of course, the Pythagorean triangle with its primary and smallest triadic ratios 3, 4, 5 is preferred over all others; its symbolism and importance for the measurements of ancient temples (right angles) is also relevant. If I do not think in terms of the form, i.e. not morphologically, but view other triangles as equal simply because they are triangles, then I can continue along these lines and say that in the infinite plethora of numbers, there must be some numbers from which I can build the numbers for a chromatic scale—which is correct!

So—as a brief response to the above objections—one gets nothing from the doctrine of correspondences without a certain evaluation. This evaluation can never come from the uniform concept of number or from logical conclusions alone, but must come from a formed number, namely the tone-number (as far as harmonics goes) and from a formal type of thinking that, while using logic and causality, does not rest upon concepts but on evaluations of these concepts, i.e. upon inner psychic formative tendencies. Every evaluation, however, brings research up out of mere factual analysis and has its true origin in a domain of ideas that are “no longer of this world.”

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211 See the interesting statements about the number 5 in Plutarch’s essay On the E at Delphi.
212 Hörender Mensch, pp. 116-117 and §28a of this book.
If, according to Plato’s doctrine, the intellect, however sharp it may be (Today, rather than intellect, we might speak of purely scientific thought, founded only on logic and factual material), can have no direct access to the world of the knowledge of values (see the above quote from Jakob Böhme), then the doctrines of correspondences—of which harmonics is only one kind—will once again pave the indirect way to this world, even if they must be fertilized and propagated by values if the “Eros” in them is to be effective.

“And he [Zeus] ordains the golden chain of ether; So that everything exists as one, and yet separate.”

VIII.

Harmonics as Symbolism

The third foundation on which akróasis is built is Harmonics as symbolism, or harmonic symbolism.

**Relationship of the Harmonic Doctrine of Correspondences to Harmonic Symbolism**

The difference between harmonic correspondence and harmonic symbolism lies predominantly in that for the series of correspondences, the emphasis is placed on the individual phenomena of correspondence (analogies), whereas symbolism returns to the prototype behind the correspondences.

**Analogy**

To recapitulate: an analogy is the agreement of significant indicators in two cases. An analogy exists, for example, between the gills of fish and the lungs of land animals. The organs are dissimilar, but their function, breathing, is the same: herein lies the analogy. Analogical conclusions have high significance in practical and scientific thought, although they can often lead to misjudgments. Harmonics also works with analogies, but always with the binding force of the harmonic theorem, thus a centering of the two analogous facts in certain forms of the psyche and nature. Fechner’s Zend-Avesta, as we saw, predominantly uses analogies, such as that of the soul of the earth to the human soul. But this analogy, although beautiful and believed in by many, is completely nonbinding, since the *tertium comparationis* is missing, namely those forms which give rise to both earth soul and human soul. There are hundreds of analogies of purely geometric forms which are in accordance with plant forms; one could fill books with them. But there are just as many geometric forms to which no analogies exist in the plant kingdom. Where is the common law there? Such analogies have meaning only when I have found a reference point lying outside geometry and plants about which I have an inner certainty, and which I can test. To find this reference point in the domain of botany was the task of my book *Harmonia Plantarum*.

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214 *Hieros Logos* of Orpheus-Pythagoras.
Parable

Matthew 13.10-11 reads: “Then the disciples came and said to him: Why do you speak to them in *parables*? And he answered them: To you it has been given to know the secrets of the kingdom of heaven, but to them it has not been given.” Here the parable is the clarification, the illustration of a religious truth by means of sensory narrative forms; thus it is not, in fact, an interpretation, but a comparison between spiritual fact and narrative representation.

Fables and Folktales

In the profane, the parable appears in fables and folktales; these too are poetic representations of mostly ethical truths in a narrative, historically understandable form. The element of uncertainty here lies not in possible false conclusions, but in an incomplete grasp of the parable or fable, which can still have great artistic value even if it is incomplete in this regard. The same goes for the parable concept in the visual arts: the *allegory*. For a deeply perceptive person, all of nature is a parable, whereby the akroatic background of this concept is expressed. Everything “speaks to us” if we can listen inwardly for this universal secret language.

Symbol

It is only a small step from parable to *symbol*, but a decisive one: the “eternal truth” that the parable paraphrases and makes into a story is concentrated and stabilized in the symbol via the image-concept. It is removed as far as possible from the sensory and presented in an abstraction which, like a highly sensitive detector, allows our psyche to receive direct messages from the spiritual world. To be sure, the psyche must be perceptive to this, and sadly this perceptiveness has been lost to us, with only a few exceptions, since the rise of the natural sciences.

Proclus

For example, in the Commentary on Book I of Euclid’s *Elements*, from the voluminous commentaries of the almost entirely forgotten Neoplatonist Proclus, there are deeply perceptive discussions of the concept of *σχῆμα* (= form) in relation to the mathematical symbol, making our modern handling of mathematical symbols look like a completely misguided in contrast. Nikolaus von Cusa also wrote of a concept of the primordial symbolism of mathematical signs in *Vom Wissen des Nichtwissens*: “We tread this path of the ancients, we compete with them and say that we will avail ourselves of their completely dependable certainty due to mathematical symbols, since only through symbols do we have the possibility of attaining the divine.” Similar conditions apply for spiritual, religious, and mythological symbols.

Bachofen

However, we are not completely unaccustomed to the first, intuitive inner view of the symbol. In Bachofen’s *Gräbersymbolik der Alten*, we find the following beautiful passage: “Human language is too poor to clothe in words the wealth of presentiments that the exchange of death and life awakens, and those higher hopes that belong to the initiated. Only the symbol, and the mythos connected with it, can satisfy this noble

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requirement. The symbol awakens presentiment: language can only explain. The symbol plucks all the strings of the human spirit simultaneously: language is always obliged to devote itself to a single thought. The symbol’s roots reach into the most secret depths of the soul: language only touches the surface of understanding like a slight breath of wind. One is directed inward, the other outward. Only the symbol can connect the most varied things into a unified collective expression.” Here, as in all Bachofen’s works, the full resonance of the symbol concept is still thoroughly alive. The same goes for Creutzer’s standard work, Symbolik und Mythologie, for a whole series of Romanticists, especially Novalis and Carus, and for the French Saint-Martin, as well as for Franz Baader. Ancient symbolism is also alive and well in most Masonic lodges; and the rediscovery of Bachofen by Klages is well known. In contrast, however, there is the entirely asymbolic position of all modern science. If, for example, one finds this psychoanalytic definition of “symbol” in a reference work: “Substitute for an idea intolerable to the consciousness, or behavior through a harmless expression,”216 this might perhaps be useful for analysis; but with regard to a real symbol, such a definition is certainly not “harmless.” And the important, currently widely read Lehrbuch der Religionsgeschichte, by Chantepie de le Saussaye,217 reads: “The explanation of a myth should be nothing other than its history. The task is not to find a rational kernel from irrational stories, but to describe the origin and development of the myth.” When we read in the same work,218 on symbols: “The primary concern of man in religion is not a symbolic representation of his ideas and feelings, but instead the attainment of certain things which he believes he can obtain through his illustrative activity,” it is no wonder that such a materialistic historicism explains that the old symbolists like Creutzer, etc., offer “only historical interest, not factual.”219 In the latest edition, this obdurate understanding has been corrected, but the overall character of Chantepie’s textbook has not been changed by such revisions. In dealing with symbolism and mythology, if the interpretation and reference to spiritual backgrounds and inner psychic conditions are no longer placed first and foremost, then these domains will surely become barren wastelands of “irrational stories,” which can only be put in acceptable historical order by philological mechanics. In every consideration of myth and symbol, the psyche must first open up, and only then the mechanics of intelligence, otherwise all understanding is relinquished. The fact that Creutzer, Bachofen, etc., were restricted by the limitations of their eras regarding research into historical factual material, just as we are restricted by the limits of our own era, does not affect the main issue: the grasp and understanding of the symbol itself. And in this regard, we still have plenty to learn from them today.

Thus, in the harmonic symbol—I also use the terms “prototype” and “value-form” for this—we move from the dynamic-static interplay of correspondences into the domain of pure ideas. An example of a harmonic idea, prototype, or value-form is the harmonic trinity. In my Grundriss eines Systems der harmonikal en Werformen, I made the first attempt to isolate harmonic ideas and prototypes and put them in order—admittedly a very incomplete work, which still needs many corrections and more research in the future, especially regarding the naming of the value-forms and their further construction.

216 Knaur’s Konventionelles Lexikon.
218 I, 50.
The harmonic symbol must be authenticated through correspondences, and it is psychophysically anchored by the harmonic theorems, thus “scientifically” founded. In harmonics it is not hearing alone that takes the stage—although the auditory forms are the starting point of harmonic thought and study—but also seeing (diagrams, sound-images, optical forms); the sense of touch applies measure and number to the “scientifically precise” bases; and finally, thought is added, with its logical forms as a regulator.

Since in harmonics we are advocating a new sensory theory, it should be discussed briefly in the next and final section.

IX.

Thought as a Sense

In Akròasis, p. 105 ff., I wrote the following:

“Thought is a sense, like all our other senses. Thought has its physiological basis in the brain, as sight does in the eye, hearing in the ear. So there is a sense of thought, just as there is a sense of sight, hearing, touch, etc.

“It has been a fundamental error of all philosophy since Socrates to believe that a philosophia (= love of wisdom) is possible only by means of thought and its logical forms. This immediately appears to be a paradox: how else should philosophizing take place than with reason? But has not philosophy, in the highest meaning of the word, the highest thing as the goal of its knowledge: the spirit? Let us consider the following. Every sense, along with its being-domain, has a value-domain, e.g. thought has reason, sight has the visual arts, the ear has music. It is sheer European arrogance to accord access to the spiritual only to reason, the value-domain of thought. Beethoven rightly said: ‘Music is a higher wisdom than all philosophy’, and who would deny that our other senses would likewise lead to the portals of the spiritual, to ‘wisdom,’ if only their value-domains were truly experienced?

“Our ear, our eye, our sense of touch,* ‘philosophize’ just as much as our thought. To restrict the concept of philosophizing to logical thought alone lands us with modern factual philosophy precisely where it has landed itself: facing the ‘nothingness’ of existentialism, with its cerebral acrobatics performed by its pompous minions.

“Philosophy, as the love of wisdom in its broadest sense, can thus be obtained from the most varied human utterances and activities, and the ‘spiritual’ as a final stage can be reached in most manifold ways, but certainly not only through our thought and its logical forms. This spiritual object is no longer subject to space, time, and causality; it matters not at all how and by what way it is reached, whether static or dynamic, cosmological or biological, artistic or scientific, for it exists outside of all these things; indeed, it exists outside consciousness itself. This spiritual thing is a pure meditative condition of our psyche, an immersion in the silence of the deity.

“By means of our sense organs—brain, eye, ear, sense of touch, etc.—we receive impressions that all initially impress us materially. All these impressions are objectively registered, ordered, and categorized according to the structure of the individual sense organs. Here a psychic capability has already entered in, because all impressions would

* Translator’s note: the original text of Akròasis adds in parentheses “Eros.”

lxxviii
remain chaotic were it not for something in our psyche that raises them to consciousness and forms them.

“But this ‘something’ lies in the prototypes of our psyche and not in the logical forms of our consciousness! In harmonics, we call the synthesis of these perceptions the human domain of being. If the various domains of being—those of thinking, sight, hearing, touch, etc.—are activated from inside, i.e. “kindled” from a point in our psyche which we feel as the deepest, the best in ourselves and through which we suddenly experience the relevant being-domain in its own primal sound, primal light, primal tone, then we have reached the value-domain; we move from logical laws into the norms of reason, from thought into poetry, from hearing sounds into the world of music, from everyday seeing into the world of the visual arts. And if we have the strength and the inner disposition to extend this activity, this psychic kindling, this elevated experience of the world into a condition of repose, of meditation, of ‘observing’ in Goethe’s sense, then we have achieved what akróasis means by ‘Ge-Hören’ [gehören = “belong”], and what we may designate as spirit and the spiritual.”

I wrote this passage in 1946. The claim that thought is a sense, and that there is a sense of thought just as there is a sense of hearing, sight, and touch, mostly caused irritation and head shaking. I should have added that this classification of thought is in no way unique to harmonics, and has been postulated by others as well.

**Baader**

“The senses,” writes Franz Baader,220 “are still a closed secret to today’s philosophy. It is well known that the spirit cannot be separated from the senses, but it disparages them overmuch thereby.” On Feb. 17th, 1829, Eckermann noted the following words of Goethe: “In German philosophy, two great things remain to be done. Kant has written the *Kritik der Reinen Vernunft*, whereby a great deal has happened, but the circle is not yet completed. Now, someone capable and significant must write a critique of the senses and of human understanding, and when this has been equally admirably done, German philosophy will have little more to wish for.”

**Hellmuth Pleßner**

The meaning of the senses as autonomous sources of perception has recently been paid more attention, as the above-cited work of Hellmuth Pleßner shows. A precise historical derivation and foundation of harmonic sensory theory cannot be given here; nevertheless, we will introduce a few supplementary ideas.

It seems, for example, to be taken for granted that thought is the active “spiritual” part of our psychic capability, while the apperceptions of the senses are the passive “sensory” part, the “material” so to speak, by means of which the mind, or thought, creates knowledge. Thus spirit is mostly identified with logical thought, although Kant and others distinguish between consciousness (spirit) and reason (logic). But is it logical thought alone that is “active,” does it alone have *a priori* forms? Certainly not! Every process of hearing, seeing, and touching is not only receptive, but selects according to the inner forms of our sense organs only that which is in accordance with it. When I tune my stringed instrument and the fifths are pure, then that is an active function, not a passive one, of my ear and my psyche: because when doing this, I do not need to “think” at all!

---

Every sense has exactly this kind of system of *a priori* things as does our thought. If thought dwarfed our other senses by as much as is almost always assumed today, if it alone expressed the spontaneity of our psychic capability, then it would have to manifest somehow, even without the other senses. But imagine someone born blind, deaf, and without a sense of touch, but with consciousness intact. What could this unhappy person do with his consciousness?! If one answers this platitudinous question with the “unity of our psychic capability,” then in this unity there lies the impossibility of requiring thought for spiritual things alone. The preponderance of thought over the other “senses” cannot be supported through the predicates “active” and “passive.” Even if thought “takes up” and “works with” sensory impressions, like a central intelligence, that is a purely regulative work and has nothing to do with the “spiritual.” The *a priori* forms of the structure of our senses allow only certain impressions into the information center of the brain, as if through a filter. The brain reprocesses sensory impressions with the *a priori* forms of logical thought. All senses, including thought—and for this reason I classify it as a sense—have their physiological, material basis: eye, ear, touch sensors, and brain substance. Thought as something completely exempt from materiality is a pipe dream, if not a fraud.

It is entirely different when all senses, including thought, are fertilized, or ignited, by the spiritual. Then the senses become enormously important carriers of the best things we humans have to say and impart: partaking in and realizing the realm of ideas in science, politics, art, and religion.

If we categorize thought among the senses, this is no belittling of its value, but quite the opposite: the senses previously denigrated as the spontaneous means of perception are raised to the level of thought! There will always be argument and discussion about the hierarchy of all the senses, including that of thought. To Beethoven, tone and its spiritual “ignition,” music, meant more than all wisdom and philosophy, i.e. more than the perceptions obtained through thought; a painter would place the world of light and colors above all else; for Hegel the “concept” was the *non plus ultra*; and so forth. But I believe we will only come to any sort of correct judgment and evaluation of our various psychic capabilities if we can reduce the hypertrophy of thought to its due measure, and according to the same measure raise the “senses” up from their undervaluation. Our harmonic theory of the senses intends and wishes for nothing else.

For in the final analysis, the important thing is not thinking, hearing, seeing or touching, but the spirit, the idea. One of the last great aesthetes of the German-speaking world, Moriz Carriere,\(^{221}\) wrote: “The moods and conditions of a spiritual being are not unconscious or thoughtless, but self-consciously spiritual; thus music also becomes an expression of the spirit. How the spirit sees the world, how it has formed its thoughts and will into character, what its goals are, all this is not something external to it, all this makes up its being, determines its condition, determines its state of soul. All this sounds together when the spirit expresses it musically. Admittedly, it lacks the sound articulated to the word, the bearer of thought; the tone is only a tone, defined by its ringing, its strength, its duration, its pitch, not as the sign or symbol of a concept, but only as the expression of an emotion. But if we make our thoughts clear in words, if they only achieve distinct certitude by speaking them, then all of spiritual life is still far from being completed in speech; and the visual arts and music exist precisely for this reason, because

many unsayable things can be painted and sung. *The idea is not only thought,*\(^222\) it is also formative life force, and the way it realizes itself in spatial form can only be insufficiently described; it can only be made perfectly apparent through presentation to the eye. Likewise, the idea is the principle and measure of becoming life, never taking fixed form, never remaining idle, but passing through the present in constant change, and bringing forth from it the future.”

* 

I believe this Introduction will have sufficiently prepared the reader to undertake the study of the Textbook with the correct psychic disposition. Much that remained to be said in these preparatory observations is contained in the main text.

I hope that this book will be a friendly companion to the reader and scholar. So much has been said and done, and so much still remains to be said and done. But now let harmonics as a discipline enter the world! Will it find its way, or will it get lost and disappear again? The decision is no longer in the author’s power, but is in the will of that entity from which everything emerges, and to whose ἀρμονία ἀφανής, to whose toning origin, everything will once again return.

*(Written 1944; revised and extended 1949.)*

\(^{222}\) My italics.
TEXTBOOK OF HARMONICS

SACRED SCIENCE
TRANSLATION SOCIETY EDITION

VOLUME II

BY
HANS KAYSER

TRANSLATED BY
ARIEL GODWIN

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2006
SACRED SCIENCE INSTITUTE
4-fold combination model, and can assert (see Hörende Mensch, p. 322, footnote) that the tone-material of a great many of these circles, including of course the 7th, 11th, and 13th ratios, approaches a B-major scale with a generator-tone c, and that the accessory enharmonic steps and chromatic variants are grouped around the fundamental tones of this B-major (Dorian) scale. Naturally, there are also scales of a different character: chromatic and a type of whole-tone scale, since, as anyone can easily find by means of a compass, a great number of “scale-circles” are possible upon the generator-tone line. The characteristic feature of this circle after the reduction of the peripheral tones to a single octave is, in contrast to the Pythagorean scale, a larger or smaller multitude of various whole-tone and semitone steps; on the other hand, the logarithms always add up to 1.000, which is related to the symmetry of the two halves of the circle—we will discuss this in the “review” (§39.9).

Here, as an example, we will discuss only three such circles; the reader can easily perform further analyses by means of our “P” tables. For the three circles within PE16, we choose: (1) a circle with center 6/6 and radius 6/6 – 6/1; (2) a circle with center 5/5 – 6/6 (halfway between 5/5 and 6/6) and radius 5/5 + 6/6 – 5/2; and (3) a circle with center 7/7 and radius 7/7 – 6/5 (see Fig. 359).
Figures 404 and 405

Figures 406 and 407

Figure 408

418
In logarithmic terms, this interval power series can be found very easily through successive addition or subtraction of the \( p \)-logarithm of the initial interval.

We obtain an interesting fifth-third diagram (major and minor thirds) if we mark the relevant ratios in a hexagonal grid, as in Fig. 441.
in order to find these basic ideas of Chinese philosophy once again in precise harmonic correspondence. A. von Thimus had the idea of bringing this identity (I, 83 ff.), the principles Yang and Yin, for which the *I Ching* uses an unbroken — and broken — line, in connection with the reciprocal partial-tone series. Namely, in the *I Ching* the following four images, the Se-Siang, are constructed from these lines:

\[ \begin{array}{cccc}
\_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ \\
\end{array} \]

Since Confucius, in his commentaries, identifies these images with “Siang,” i.e. mutuality, reciprocity—a reciprocity from which the entire system of the *I Ching* hexagrams is built—the idea of the model of the reciprocal “P” suggests itself in these first four Se-Siang:

The “Se-Siang” are thus to be assessed as the four basic tendencies from which the system of the world comes, surrounded by the heavenly number of the “great Yang” \[ \_ \] and the earthly number of the “great Yin” \[ \_ \] and completed by the two permeating tendencies that realize the structure of the world, the “small Yang” \[ \_ \] and the “small Yin” \[ \_ \].

From these four primal signs, the famous eight trigrams are constructed, through the addition of new lines; they are then the basis for the hexagrams of the *I Ching* that emerge through their permutation. These eight signs, which are not images of things, but images of tendencies of relation and change (*I Ching* = the Book of Changes), have the following arrangement and meaning, according to R. Wilhelm, Vol. I, p. V (see the table below).

From these diagrammatic roots, out of which the coupling of each pair yields 64 combinations, the hexagrams of the *I Ching* are constructed. For harmonic analysis, we choose from these the four that A. Amiot gives as the basis for the elicitation of the Chinese tone-system, in his “Mémoire sur la musique des Chinois,” in *Mémoires concernant le chinois*, vol. 6, Paris 1779 (from Thimus I, 86):
think of the related traditions in modern England)—I would like to introduce something, still more narrowly limited, because in its outer symbolic character, it seems to parallel the inner nature of our “P” in a remarkable way. This is the representation of the Emperor with the scepter in the right hand and the orb in the left (or vice versa). If one now uses the “P” as a basis with the monochord as a symbol of the realization, then the monochord must obviously be laid out as indicated in Fig. 470, i.e. at a right angle to the sector of the “P” that contains the < 1 ratios. The other side, in its > 1 ratios, tends toward the infinite, the universe. As a symbol for the sector that is accessible to humans, that they can “hold in their hands,” “play” within, and upon which one can “play” on the monochord, i.e. form it harmonically, the scepter, which has its origin in ancient times—another harmonic characteristic—as the rod of authority, symbol of the highest power and grandeur in ancient tree worship. The other side, the infinity of the universe, could not be symbolized better than by the orb, which surely did not originally signify just the Earth, but the sphere of the entire cosmos. The ruler’s crown is identical with the 0/0 symbol; the head is identical with the 1/1 area; and thus this image simply expresses the fact of the divine mission of every ancient and medieval kingdom and empire.

![Figure 470](image_url)

Surely this harmonic background was no longer known in later times. But it seems entirely possible to me that from the late ancient symbolic material of Neoplatonism, one of the most important ancient Pythagorean symbols is preserved in this form of the crowned ruler with scepter and orb, and that thereby an outer representation corresponding to its inner significance has won over.

While in ancient times the spiritual hierarchy was still closely connected—indeed often identical (as in China, Egypt)—with the secular hierarchy, the latter has become steadily emancipated from the former in the course of modern times, finally leading to the absolutist state systems. Since, harmonically speaking, the tone-value frees itself from the tone-number in this process, but both still hold to the scheme of the hierarchy, this
One must admit that for the most important laws of the “P”—Eidos, Origo with its three “directions”—no better graphic image-concept could be found. This same symbol, so widely used in Egyptian hieroglyphics and on Egyptian reliefs, allows one to assume with the highest probability that the system of the “P” established on the basis of the monochord was known in the secret schools of Egypt, and that Pythagoras brought the system from there to Greece.

The ancient Babylonian doctrine, still echoing in the cosmogony of Berossus, of the emergence of the world of the senses from the unification of a creating male and receiving female, birthing, primal force (corresponding to the Chinese Yin-Yang principle) is recorded in the Origenian Philosphumenes. This “Origenes of the Heathens and Neoplatonists”—not to be confused with the church father of the same name!—next to Plotinus the most significant scholar of Ammonius Saccas, declares (according to Friedrich Münter: Religion der Babylonier, Copenhagen 1827, p. 46): “Diodorus the Eritrean and the musician Aristoxenus say that Charatas the Chaldaean taught Pythagoras this: two are the principles of all things from the beginning; a paternal and a maternal. One is light, the other dark. Qualities of the light are warmth, dryness, lightness, swiftness; to the darkness belong the cold, damp, heavy, and sluggish. And from all these, along with man and woman, emerges the world, and there is a musical harmony.”
§54.2. The Deity

Expression: $0/0$

$^\text{p}$symbol: $\mathcal{S}$


Commentary: We did not arrive at this highest of all harmonic concepts of the $0/0$ deductively, setting it at the beginning of the “P”, but instead inductively, following the generator-tone line and the equal-tone lines back beyond $1/1$. This is exceptionally important for harmonic deduction, because it is precisely through this induction that we are forcibly led to this concept; so here we believed ourselves to be justified in speaking of a “harmonic proof of God,” i.e. the factual existence of an ultimate spiritual reference-point. Admittedly, our statements about this concept can only cling to words, such as
which was certainly ancient knowledge in all high oriental cultures!), its "flip side" must be seen as at least as important for ancient culture: that in this discovery, the quantitative (string length, or simply matter) can be qualitatively-psychically evaluated (the audible tone ratios). And it was precisely this double aspect of the *tertium comparationis* of the "number"—that it reaches into matter on one side, into our psyche on the other side, namely into our psyche not only as intellectual-discursive logical form, but as an entire gestalt of our perception, feeling, our soul (interval, chord, scale, etc.)—which so "intoxicated" the ancients in this "discovery of Pythagoras." This akroatic background of ancient number-thought has been completely lost to us today, and for these reasons we also find, in almost all works on the history of mathematics, a complete lack of understanding, and connected with it, a lack of interest regarding the harmonic foundations of ancient mathematics. Here almost everything must be redone and rebuilt.

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**Figure 479**

The partial-tone coordinates of index 16 ($\text{I}_{16}$) with their logarithms (base 2), coordinates and tone-values, decimals and angles (frequencies).
For comparison, the 12 tempered semitones are drawn in dotted lines (30° 60° 90° etc.). Here we see plainly how the two “adversarial” camps have their own succession in their \((\frac{1}{n})^n\) and \((\frac{n}{1})^n\) powers, and neither needs the generator-tone at all. If we write out the \(\frac{1}{n}\) and \(\frac{n}{1}\) series separately:

<table>
<thead>
<tr>
<th>((\frac{1}{3})^5)</th>
<th>((\frac{1}{3})^6)</th>
<th>((\frac{1}{3})^7)</th>
<th>((\frac{1}{3})^8)</th>
<th>((\frac{1}{3})^9)</th>
<th>((\frac{1}{3})^{10})</th>
<th>((\frac{1}{3})^{11})</th>
<th>((\frac{1}{3})^{12})</th>
</tr>
</thead>
<tbody>
<tr>
<td>des</td>
<td>es</td>
<td>f</td>
<td>ges</td>
<td>as</td>
<td>bes</td>
<td>b</td>
<td>ces</td>
</tr>
<tr>
<td>Log: 075</td>
<td>150</td>
<td>245</td>
<td>320</td>
<td>415</td>
<td>490</td>
<td>565</td>
<td>660</td>
</tr>
<tr>
<td>Diff: 95</td>
<td>75</td>
<td>95</td>
<td>75</td>
<td>95</td>
<td>75</td>
<td>95</td>
<td>75</td>
</tr>
</tbody>
</table>

\((5 \times 95); (7 \times 75)\)
THE AUTHOR’S PUBLICATIONS


2. **ORPHEUS:** *Morphologische Fragmente einer allgemeinen Harmonik* [*Orpheus: Morphological Fragments of a Universal Harmonics*]. 1st printing, Berlin 1924. Folio, 92 pp. with plates, tables, and ills. (Introduction; Ch. 1: The Lambdoma; Ch. 2: Of Sound in Stone). Due to its bibliophilic design, this work, estimated at 5 printings and only released in small batches, could not be continued (out of print).

3. **DER HÖRENDE MENSCH:** *Elemente eines akustischen Weltbildes* [*The Hearing Human: Elements of an Acoustic Worldview*]. Verlag Lambert Schneider, Berlin n.d. (1932) 8º. 368 pp., 8 plates and tables, and ills. (Introduction; Ch. I: The Partial-tone Coordinates; Ch. II: Number-form in Harmonics; Ch. III: Sound in the Inorganic [Chemistry, Atom theory, Crystallography, Astronomy]; Ch. IV: Sound in the Organic; Ch. V: The World of Creation [Architecture, Tone and Light, Music]; Ch. VI: The World of Hearing. Index.) The remaining printing of this book was burned in an air raid on Leipzig (out of print).

4. **VOM KLANG DER WELT:** *Ein Vortragszyklus zur Einführung in die Harmonik* [*The Sound of the World: An Introduction to Harmonics in a Series of Lectures*]. (M. Niehans Verlag, Zurich 1937) Occident Verlag, Zurich 1946. 8º, 179 pp. with ills. (Foreword; I. Historical and Epistemological Assumptions; II. The Tone-number; III. Harmonics in the Inorganic Sciences; IV. Harmonics in the Organic Sciences; V. Harmonics and Art; VI. Harmonic Symbolism.)

5. **ABHANDLUNGEN** zur *Ektypik harmonikaler Wertformen* [*Essays on the Ektypics of Harmonic Value-Forms*]. (M. Niehans Verlag, Zurich 1938) Occident Verlag, Zurich 1946. 8º, 269 pp. with plates and ills. (Foreword; I. Definitive Questions about Harmonics; II. Albert von Thimus; III. The Harmonic Perspective; IV. Correspondences; V. Pythagoras; VI. Tone spectra; VII. Diary of Binntal.)

6. **GRUNDRISS** eines *Systems der harmonikalnen Wertformen* [*Outline of a System of Harmonic Value-Forms*]. (M. Niehans Verlag, Zurich 1938) Occident Verlag, Zurich 1946. 8º, 335 pp. with 29 plates and figures. (Introduction; Ch. 1: The Primal Phenomenon of Tone-number; Ch. 2: The Harmonic Theorems [A. The Theorem of Tone-Number; B. The Theorem of the Tone-series; C. The Theorem of the Tone-number Groups]; Ch. 3: Harmonic Value-forms [A. The Harmonic Topic; B. Harmonic Vectors; C. Harmonic Inversions; D. Harmonic Tectonics; E. Harmonic Axiology; F. Harmonic Ambivalences.])

8. **AKRÓASIS: Die Lehre von der Harmonik der Welt [Akróasis: The Study of a Harmonics of the World].** Benno Schwabe Verlag, Basel 1946 (German release by Gerd Hatje Verlag, Stuttgart 1947). Small 8º, 157 pp. with 2 plates and index. In this small book, released after the completion of the *Textbook of Harmonics*, the author hopes to give an overview without numbers or formulae, understandable to all, of the results of his harmonic scholarship.

9. **EIN HARMONIKALER TEILUNGSKANON:** Analyse einer geometrischen Figur im Bauhüttenbuch Villard de Honnecourt [A Harmonic Division Canon: Analysis of a Geometric Figure in Villard de Honnecourt’s architectural work]. Harmonic Studies, vol. I. Occident Verlag, Zurich 1946. 8º. 48 pp. with 18 ills.


11. **LEHRBUCH DER HARMONIK [Textbook Of Harmonics].** Benno Schwabe Verlag, Basel’ 1950. (German earlier release, Occident-Verlag, Zurich.) Folio, 328 pp. with 479 ills.


**POSTHUMOUS WORK**