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SVEN-TAGE TEODORSSON

THE PHONEMIC SYSTEM
OF THE ATTIC DIALECT
400—340 B.C.



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OF THE ATTIC DIALECT
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To Birgitta

Die in obigen
Verhandlungen
bisher nicht in
den vorliegenden
Verhandlungen
in der vorliegenden
Verhandlungen
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PREFACE

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Sven-Tage Teodorsson

INTRODUCTION

Subject and Purpose of Investigation

The purpose of this investigation is to reconstruct the phonemic system of the dialect spoken by the majority of the population living in the province of Attica, Greece, during the period 400—340 B.C.¹

The choice of this dialect as the subject of our study was quite natural. The Attic dialect holds its position as the most important of the Ancient Greek dialects, not only because of its great literature but also linguistically. The preserved contemporary graphic material is very extensive and varied and thus constitutes a more solid basis for linguistic research than do the sources of any other Old Greek dialect.

The main reason for concentrating on the period 400—340 is the fact that the first half of the 4th century (or more exactly: the decades from the end of the Peloponnesian war in 404 until the conquest of Attica in 338 through Philip of Macedonia) constitutes the last period of the old political and linguistic independence of Athens, before the rise of the Macedonian hegemony and the new common Greek language, the Koine.

Consequently, the present investigation aims at a reconstruction of the Attic phonemic system *in its last phase of independence*.

Historical Background and Present State of Research

The question of how the Attic dialect was pronounced is very old. The modern² discussion of the problem was inaugurated by Erasmus

¹ All dates are B.C. unless otherwise marked.

² For an exhaustive survey of the discussions of the problem from the Renaissance down to the twentieth century cf. Drerup. Cf. further below, pp. 273 ff.

of Rotterdam in his *Dialogus de recta Latini Graecique sermonis pronuntiatione* (Basel 1528).

He founded his arguments mainly on the fact that the many graphic correspondences to Modern Greek /i/ (ι, ει, η, υ, οι, ηι, υι) could not possibly have been invented originally for the representation of one single sound. According to Erasmus' theory the OA graphemic system should be looked upon essentially as a phonemic transcription. Erasmus' theory was called "etacistic" in contrast to the current "iotacistic" pronunciation of Greek—Old as well as Modern—by native Greeks and European scholars who maintained that Attic was pronounced roughly like Modern Greek.

The discussion was continued through the centuries, until in the nineteenth century the problem gained a new and widespread interest through the rise of the modern Greek state and because of the great discoveries made in the field of comparative linguistics. The disputes were often rather animated and the advocates on either side certainly did not always present strictly scientific arguments.

One of the main reasons why the discussion often became less scientific was the pedagogic and practical aspect: how should Greek be pronounced at school? This aspect, being bound up with nationalism not only in Greece but also in most other countries, was an important driving force in finding arguments for either of the opinions about Ancient Greek pronunciation.

Finally, the etacistic pronunciation was widely accepted except in Greece, and at the beginning of the twentieth century the discussions gradually ebbed away.

During the nineteenth century epigraphy developed into a special branch of research and provided the linguists with great quantities of new material. The newly discovered inscriptions were eagerly scrutinized and interpreted by philologists and historians. However, the inflamed debate of the time made many scholars lose much of their objectivity. Both etacists and iotacists often employed the new material primarily as a source for finding arguments against the other side, stressing and over-estimating one kind of evidence and minimizing or plainly neglecting the opposite. Even recognized scholars did not always avoid such prejudiced views.

Another cause of inadequate treatment of epigraphic documents lay in the philological tradition with its almost atticistic approach

to ancient texts. Its puristic, prescriptive view was unhesitatingly applied to the primary graphic documents as well as the copied ones. The inscriptions were corrected according to the prescriptive grammar of Classical Attic. Deviations from the normal were classed as "vulgar forms", "scribal mistakes", "confusions", "careless writings" etc. and, being looked upon as such, were often neglected. Only towards the end of the century was a greater interest paid to such phenomena. But the widely prevailing depreciation of Modern Greek vernacular as compared with Classical Greek prevented many—even famous—scholars from looking with full objectivity upon the data.

Thus, until the middle of the twentieth century very little was done to enlarge our knowledge of the development of Greek phonology. A last and isolated presentation of the old iotacistic view appeared in 1940, namely A. Strohschein, *Auffälligkeiten griechischer Vokal- und Diphthongschreibung in vorchristlicher Zeit*.

Survey of Method

In the 1930's the methodological achievements of the Prague school produced a renewed interest in phonology, which, however, was originally concerned above all with spoken, modern languages, but which has been developed lately by R. Jakobson, A. Martinet, and others to comprise even historical phonology. It has been shown that historical phonology according to modern linguistic methods is quite possible and that these methods can make considerable contributions towards a better understanding of phonological developments.

During the last two decades some renewed investigations into Ancient Greek phonology have been made,³ according to the modern methods mentioned as well as more traditional ones. Some of these works present clues to solutions of different problems, but what is common to them all is the fact that they deal with partial problems and/or do not comprise all the material available and thus do not offer a complete view of the subject.

³ E.g. by W. S. Allen, A. Bartoněk, W. Brandenstein, J. S. Lasso de la Vega, M. Lejeune, L. Lupaş, M. Ruipérez, and others.

These shortcomings are rather remarkable, firstly because in modern linguistic theory in general—we are concerned here only with phonology—each language is regarded as an integrated system of relations and interactions, secondly because before the phonology of a language can be described, the phonetic pattern must first be mapped out in detail. The last condition is rather easy to meet when one deals with languages still spoken, since further evidence can then be obtained from informants, but the difficulties in getting at the structures of languages that are no longer spoken must not induce the researcher merely to assume that (part of) the preserved graphic documents of the language investigated can be regarded almost as true and complete records of the voices of native speakers.

Nevertheless, this is not seldom done, even by historical phonologists who pretend to work according to modern methods. Thus, they take the orthographic norm of the graphemic system to be a direct reflexion of the corresponding phonemic system, i.e. they look upon the orthographically normal writings as phonemic transcriptions and treat orthographic variants (spelling deviations) quite in the same way as the nineteenth century atticistic philologists.

It seems to be evident, firstly, that just these deviations constitute to the historical phonetician and phonologist the essential substitute for the records of informants' voices that are the raw material for the researcher who describes the phonology of a language still spoken.

Secondly, a meaningful renewed investigation and description of a historical stage in a language according to new principles should not be based solely upon the material present to and used by previous scholars, or else it will turn out to be only a fruitless rearrangement of old knowledge. Thus, one must not content oneself with the material provided by handbooks almost a century old, e.g. Kretschmer and Meisterhans, as a basis for drawing phonemic conclusions, the method practised by many phonologists, but one must examine as great as possible a corpus of graphic documents found up to the present time. All available information should be taken into consideration.

Thirdly, it seems to me necessary to emphasize that all evidence of the same nature should be evaluated in one and the same way, seeing that the old (nineteenth century) way of looking upon graphemic data has not yet been totally abandoned.

Finally it must be borne in mind that there is a fundamental

difference of evidential value between data from primary graphic documents on the one hand, and data from copied texts on the other, although originally produced at the same time.⁴ Furthermore, other material such as orthophonic (cf. below, p. 22, n. 14) information and discussions about pronunciation by ancient authors, and onomatopoeia, loan-words etc. should be regarded as secondary—especially when not dating from the period and/or not directly related to the dialect investigated—compared with primary graphic material from the period, dialect, and area in question.

Consequently, in the tracing of the once existing phonetic pattern that must forego a meaningful description of the phonology of any historical stage in a language there is good reason to concentrate on the most conclusive primary graphic material, paying at the same time all due attention to the other, the secondary. In the present investigation, then, I have concentrated on infrequent orthographic variants, since these constitute the most significant evidence. It should be pointed out that the investigation aims at a reconstruction of the phonemic system of the majority of users of the dialect. This implies that all kinds of written documents ought to be in the corpus and be evaluated according to the same principles.

The method followed in the present work is a combination of diachrony and synchrony. This implies that all documents from the time of the introduction of the alphabet down to 200 B.C. are comprised in the investigation.⁵ The method pursued may be outlined in the following way:

⁴ Cf. Teodorsson, *Glotta* 51 (1973) 248.

Lupaş, *Phonologie*, pp. 11 f. makes no distinction between these two kinds of sources and shows (*l.c.*, p. 23) a tendency to look upon the writings in inscriptions as peculiar and irregular and as such less relevant as against the homogeneously written literary texts. The possibility that the latter have been normalized and/or manipulated by the copyists is not even mentioned, and so the unfounded opinion can be maintained that (p. 24) "l'orthographe des textes littéraires est plus fidèle à la réalité phonétique que celle des inscriptions".

Lupaş does not state, by the way, if the dialect she describes is that of the majority of the Attic population or that of an élite trained in writing and literature.

⁵ Of course it would be possible to perform the investigation totally according to synchronic method. We would then have concentrated the study on the period 400—340 and examined only documents from those years. But

Point I (Chapter 2)

A graphemic system of the Attic dialect, an outcome of historical and comparative method, is made one part of the basis of investigation.

Point II (Chapters 3—4)

A phonemic system of the Attic dialect of a period previous to that investigated—an outcome of historical and comparative method—is made another part of the basis of investigation and is designated *tentative*.

The correspondences between the graphemic and this tentative phonemic system are listed.

Point III (Chapter 5)

A phonemic-graphemic relational study with normative aspect (cf. below, pp. 49—52), based on the tentative phonemic system and the graphemic system, is performed by collecting and listing in principle all extant instances of infrequent orthographic variants, i.e. those with a relative frequency less than 10 % (in some exceptional cases less than 25 %; cf. p. 69).⁶

Orthographic variants with a larger relative frequency are not included, since these have been sufficiently documented and described in previous works, especially Meisterhans and Lademann. The cases excluded are accounted for pp. 69 f.

The purpose of the phonemic-graphemic relational study is to test the tentative phonemic system against the graphemic one.

Point IV (Chapter 6)

A phonetic evaluation of orthographic (phonographemic)⁷ data is made mainly according to a synchronic principle, called *Principle 1*.⁸

that would mean that our material was highly limited and thus would be much more exposed to chance. Moreover, it is neither possible nor permissible to neglect the knowledge we already possess of stages preceding and following that period. Cf. below, pp. 68 and 165, n. 83.

⁶ Since the present relational study is an orthographic one, non-orthographic writings (cf. p. 50) are not counted in the absolute frequency of a phonographeme.

⁷ Cf. below, pp. 21 f.; however, since the normative aspect prevails in the present study the terms on ortho- are mostly used.

⁸ Cf. below, p. 50.

This procedure is facilitated by a system of factors for graduation of phonetic evidential value of instances of orthographic variants.⁹

Point V (Chapter 7)

Secondary evidence, i.e. evidence other than that studied under Point III, is accounted for and phonetically evaluated.

Point VI (Chapter 8)

A phonemic analysis of the phonetic information gained under Points IV—V is accomplished mainly according to the theories of Martinet and Hoenigswald,¹⁰ and the phonemic system of the majority of users of the Attic dialect during the period 400—340 is reconstructed.

⁹ Cf. below, pp. 55—63.

¹⁰ Cf. below, p. 283 f.

General Linguistics

1. TERMINOLOGY

Phonemics and graphemics

There does not exist any uniform phonemic theory or terminology—perhaps with the exception of generative theory. However, the latter does not concern us here, because the purpose of the present investigation is not to write a generative grammar, but to present a possible basis for one, through an analysis performed according to “classical” phonemic theory. There are some differences in theory and terminology between different schools of phonemics and phonology. On the points where the theories differ, the source of the alternative followed in the present work is generally referred to.

In graphemics there are also some differences, and theory and terminology are still being discussed.

Generally speaking, however, the conceptional and terminological apparatuses of these two fields of research may by now be said to be current. Therefore I only refer to a lucid survey of the two parallel systems by E. Pulgram, *Word* 7 (1951) 15—20.

Morphophonemics

For the description of morphophonemic alternations the term *morphophoneme* is used. Ex.: The def. art. masc. occurs in the form [tom] before labial, as [ton] before velar, and as [ton] elsewhere. The two phonemes /m/ and /n/ ([ŋ] is an allophone of /n/) may be said to be members of a superior concept, namely the morphophoneme /N/.¹¹

¹¹ In European linguistics the term “archiphoneme” is most common. It is partly synonymous with “morphophoneme”. Sometimes one even meets

Analytical procedures

The fundamental method of phonemic and graphemic analysis is *commutation*. Commutation is possible between *minimal pairs*, contrastive in one segment only, e.g. οἶκος : οἶνος, showing the phonemic status of /k/ and /n/ (and the graphemic status of <K> and <N>). In the analysis of historical phonemic systems, however, this method is not entirely reliable; cf. below, p. 38, n. 33 and p. 303, n. 358.

For further principles of analysis followed in this book cf. K. Pike, p. 62 and elsewhere.

*Relational concepts*a) Descriptive proper¹²

For an adequate description of the interrelations between the phonemic and the graphemic systems a separate terminology should be used, in order to prevent notational confusion. This has already been pointed out by McLaughlin (pp. 32 f.). However, S. Allén (pp. 38—41 and 156 f.) has suggested a terminology that must be said to be clearer and more logical, and consequently this is used here (as far as such a terminology is needed in the present normative study).

The terms in question are the following (with the respective notational symbols):

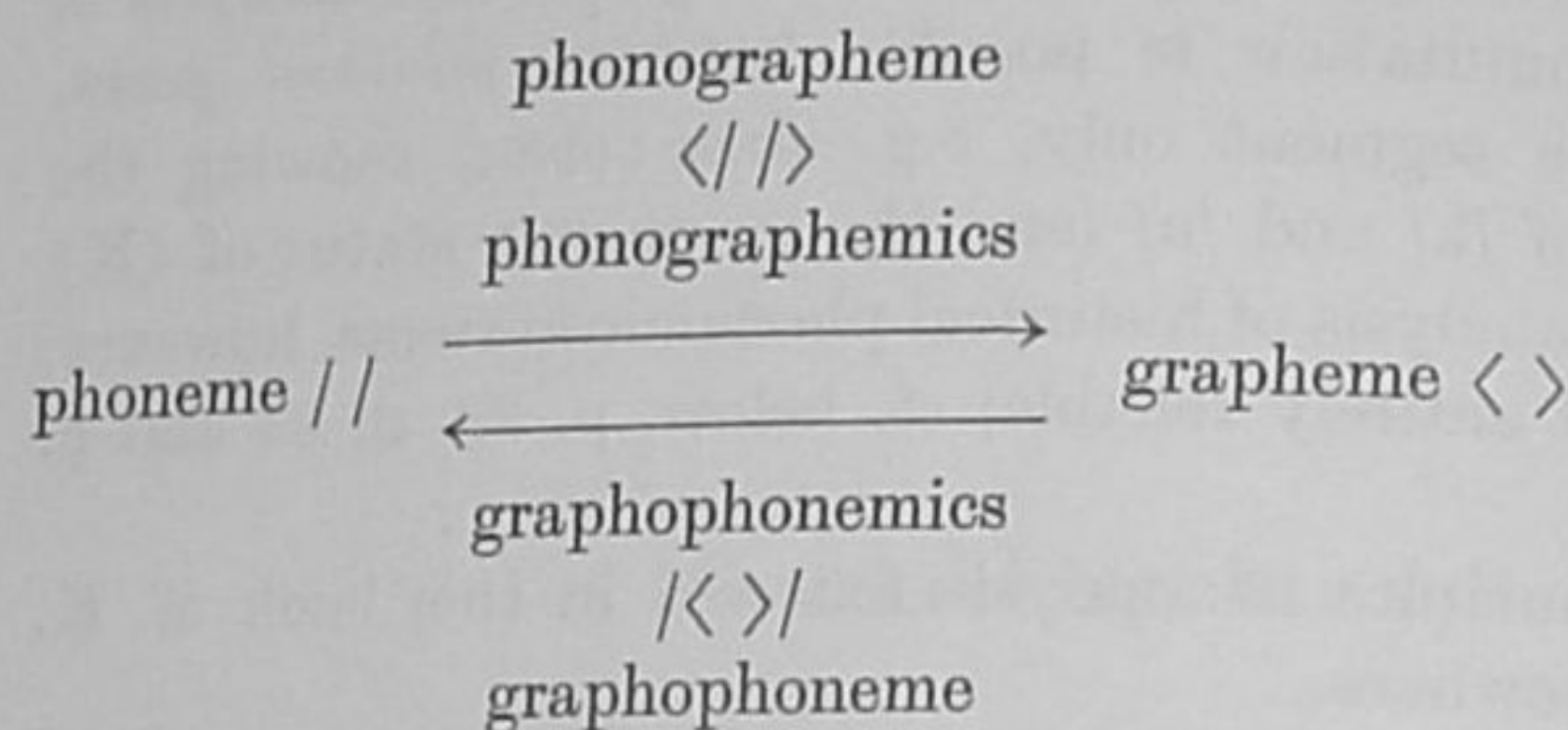
1. *Phonographeme* <|/|> = a class of graphemes (or graphemic sequences) corresponding to one phoneme.
- 1b. *Allophonograph* < > = a member of that class.
2. *Graphophoneme* |< >| = a class of phonemes (or phonemic sequences) corresponding to one grapheme.
- 2b. *Allographophone* | / = a member of that class.

with the false opinion that [m] and [n] in the above forms are allophones of one and the same phoneme; for example, Leumann, *Phonologie*, p. 119 maintains that in Lat. *scrib-o*, *scrip-tus* the [p] is an allophone of the phoneme /b/. Such a description is inadequate, because [b] and [p] can be shown in other positions to be separate phonemes: *bello* : *pello* etc.

The term archiphoneme is not used in this book.

¹² These concepts are mentioned here since they are the more general as compared with the special normative ones generally used in the present orthographic study.

The terms are intended to illustrate in which direction the relation is regarded. The whole complex can be shown by a diagram:



The concepts of phonographeme and graphophoneme are at the same level of abstraction as that of morphophoneme (or "archiphoneme"),¹³ since they are classes of graphemes or phonemes. This is indicated graphically by the double notational symbols.

b) Descriptive normative

All the concepts hitherto discussed are purely descriptive, i.e. they are used for descriptions without any particular aspect. In some relational studies, however, the main interest may be concentrated especially on *the normal* and/or the deviations from the normal. Such studies may be called *normative*, and the terms to be used are those with ortho-:

Orthography = the normative study of the relations phonemic system → graphemic system.

*Orthophony*¹⁴ = the normative study of the relations graphemic system → phonemic system.

2. NOTATIONAL SYMBOLS

{ }	Morpheme.
//	Allomorph, morph.
{λππ}, {λυ} etc.	Lexical morphemes.
{Masc}, {Pres} etc.	Grammatical morphemes.

¹³ The corresponding graphemic concept is "archigrapheme" (cf. McLaughlin pp. 50 ff.). However, there is no need of such a concept in this book.

¹⁴ The term has been suggested by S. Allén (pp. 40 f. and 157) as corresponding better to "orthography" than the term "orthoepy" formerly used. Thus "orthophony" and the derivative "orthophonic" are used in the present work.

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Morphophoneme (written in capitals).

Phoneme; allographophone (phonemic transcription).

Allophone, phone (phonetic transcription: IPA convention).

Any vowel phoneme.

Any consonant phoneme.

Grapheme, allograph, graph; allophonograph (all written in capitals).

Any autographeme (corresponding to /V(:)/).

Any syngrapheme (corresponding to /C(:)/).

Graphophoneme.

Phonographeme.

Boundary of morpheme, word, or sentence.

Boundary of line.

Position of occurrence of the item under discussion. Ex.: [z] /- [d] means: the sound [z] occurs in the position before [d].

Variation (between two or more items).

Change into. Ex.: [e:] > [i] means: the sound [e:] changes into [i].

Change from. Ex.: [y(:)] < [u(:)].

Zero: absence of any linguistic unit.

Braces are used to abbreviate the listing of (two or more) symbols with identical but not simultaneous function in the context. Ex.: [z] /- { [b] / [d] } means: [z] occurs in the position before [b] or [d] (not [bd] or [db]).

Braces are also used to conflate (two or more) rules which are identical except for one symbol which always occurs in the same position.

Ex.: [a] { [e] / [o] } > [a] [a] conflates the rules [a] [e] > [a] [a] and [a] [o] > [a] [a].

Square brackets are used (besides being employed for phonetic transcription) to abbreviate the listing of (two or more) rules pertaining to strings which are different and identical in the same places.

[]

Ex.: $\begin{bmatrix} [ai] \\ [oi] \end{bmatrix} [a] > \begin{bmatrix} [ai] \\ [oi] \end{bmatrix} [ai]$ conflates the two rules $[ai] [a] > [ai] [ai]$ and $[oi] [a] > [oi] [ai]$ (but *not* $[ai] [a] > [oi] [ai]$ or $[oi] [a] > [ai] [ai]$).

Parentheses are used to abbreviate the listing of (two or more) symbols with identical function and optional co-occurrence. Ex.: $/V(:)/$ means: a) any short vowel, b) any long vowel.

Epigraphy and Archaeology

1. TERMINOLOGY

Black-figure	Technique of vase-painting almost universally prevailing during the 6th c. down to ca. 530.
Defixio	Inscription containing a "binding" magic text.
Graffito	Writing incised on ceramics or other material.
Ostrakon	Sherd of ceramics used as a ballot.
Pinakion	Juror's tablet used in court proceedings.
Red-figure	Technique of vase-painting prevalent from ca. 530 down to the 4th c.
Stoichedon	Epigraphic convention of engraving the same number of letters in each line.

2. NOTATIONS

The so-called Leyden notational system is used.

$[\alpha\beta]$	Illegible letters restored by the editor: $E\Delta O\Xi E T \dots H M \Omega I = \epsilon\delta o\zeta\epsilon \tau[\tilde{\omega}i \delta]\acute{\eta}\mu\omega i.$
$\{\alpha\beta\}$	Superfluous letters: $E\Delta O\Xi E T \Omega I T \Omega I \Delta H M \Omega I = \epsilon\delta o\zeta\epsilon \tau\tilde{\omega}i \{\tau\tilde{\omega}i\} \delta\acute{\eta}\mu\omega i.$
$\langle\alpha\beta\rangle$	Omitted or falsely written letters supplemented or corrected by the editor: $E\Delta O\Xi E \Delta H M \Omega I = \epsilon\delta o\zeta\epsilon \langle\tau\tilde{\omega}i\rangle \delta\acute{\eta}\mu\omega i. E\Delta O\Xi E = \epsilon\langle\delta\rangle o\zeta\epsilon.$
$(\alpha\beta)$	Letters omitted through abbreviation and supplemented by the editor: $TPIH = \tau\pi\iota\acute{\eta}(\rho\alpha\rho\chi o\varsigma).$
$[[\alpha\beta]]$	Letters erased by the writer but still legible: $E\Delta O\Xi E T \dot{H} I T \Omega I \Delta H M \Omega I = \epsilon\delta o\zeta\epsilon [[\tau\tilde{\eta}i]] \tau\tilde{\omega}i \delta\acute{\eta}\mu\omega i.$

Chapter 1

GRAPHEMIC SYSTEMS AND PHONEMIC SYSTEMS IN GENERAL

Languages can be defined as communication systems made up of symbols.

A given language may have one or more manifestations. The most common is a phonemic system, and most languages manifest themselves through graphemic systems. There also are other language manifestations, such as the deaf mutes' gesture systems, flag signal systems, light signals etc. *None of the possible manifestations of language is primary in relation to the others.* A given language may manifest itself through only one form of manifestation. It is true that many languages lack a graphemic system, but it is also true that there are a great number of languages that do not possess a phonemic system. These are the so-called "dead" languages, whose once existing phonemic systems are no more manifest, but only more or less hypothetic,¹⁵ and can to some degree of probability be reconstructed on the basis of the kinds of evidence mentioned above, pp. 16 f. A theoretically possible extreme is that the phonemic system of a language is *completely* unknown and cannot for the time being be reconstructed at all, while the graphemic system of that language can still be used.¹⁶

The fact that the phonemic system of a historical language is not essential for the function¹⁷ of that language as such proves that the graphemic system of a given language (historical or modern) must

¹⁵ Cf. Hjelmslev, p. 109.

¹⁶ This may be the case if a historical language is not related, neither genetically nor typologically, to any other known language, historical or modern, and if its graphemic system has been deciphered, for example by means of a parallel text in a known language.

¹⁷ A language functions when it can be used as such, i.e. as a communication system of symbols.

be considered an autonomous manifestation of that language as well as its possibly existing phonemic system.

As early as 1939 J. Vachek (*TCLP* 8, pp. 94—104) launched the idea that the spoken and the written forms of a language should be regarded as equal. But it is only in the last few years that students of graphemics¹⁸ have begun to maintain the full autonomy of graphemic systems in relation to phonemic ones. This is rather surprising considering that there are many evident and illustrative examples at hand, especially among the syllabic graphemic systems. The Chinese graphemic system, for instance, corresponds to a great many phonemic systems both contemporary and historical.

The evident fact, however, that a language can function either by means of a phonemic or a graphemic system or any other conventional system whatsoever, makes us question whether the notion "dead language" can be considered adequate as it is defined by L. Hjelmslev (*l.c.*, above, note 15): "Par une langue morte nous comprenons un état de langue dont la prononciation, et par conséquent, le système phonétique, reste conjecturale, hypothétique ...".

When we see, then, that the function of a language does not depend on the existence of a phonemic system, any more than it depends on the existence of a graphemic system, it becomes evident that a language should not be denoted "dead" as long as its users are able to communicate by means of one existing manifest system of that language.

Consequently, I should like to propose a new concept of "dead" language with the following definition:

A language is dead when it does not manifest itself by any functioning¹⁹ linguistic system.

If we accept this definition, we will be able to call languages that function by means of graphemic systems only, such as Latin and Ancient Greek, living, just as we call modern languages living even when they lack graphemic systems and function by means of their phonemic systems only.

On the other hand we would rightly call a language such as Minoan a dead language, because its graphemic system (Linear A)

¹⁸ E.g. Pulgram, McIntosh, McLaughlin, S. Allén, and others.

¹⁹ Strictly speaking the term "functioning" is rather tautological here, because a system of symbols, the meaning of which is unknown to everybody, should not be characterized as linguistic at all.

has not hitherto been deciphered. But as soon as someone succeeds in analysing its code, this will imply a revival, and we may enter into communication with the Old Minoans too, just as we do with the Old Romans and Athenians when we use their graphemic systems.

These considerations about the concept of "dead language" being parenthetical, I think I have shown, by discussing these questions, that I share the opinion that graphemic systems are autonomous and not mere representations of corresponding phonemic systems. Only phonemic and phonetic transcriptions form an exception, since they are by definition representations of the phonemic or phonetic patterns of a spoken language. Newly designed graphemic systems may—if alphabetic—be more or less detailed and exact phonemic transcriptions.

Once constructed, most graphemic systems preserve their original shape for a long time, often for centuries. That is to say, while the users of a phonemic system gradually modify this by small variations of speech, the users of a graphemic system always tend to keep this intact and unchanged, because structural changes cannot be brought about gradually, as is the case in phonemic systems, but must be introduced abruptly. Such innovations may be launched by individuals, but they seldom establish themselves, unless they are assented to by some authority, linguistic or political. Only if there is insufficient control of orthography may some fancies of writing, produced by small groups of individuals, propagate and become permanent. If the control is strict this is very improbable.

Graphemic systems, then, may be characterized as static and conservative, in sharp contrast to phonemic systems that show an inherent progressiveness. Furthermore, the stability of any graphemic system will increase in proportion to the frequency and duration of use: if a great literature is produced and a settled practice of writing is established in political and social administration, the graphemic system in question will become more and more unlikely to change as time goes on.

It is of great importance, then, to bear these facts in mind if one is going to reconstruct the phonemic system of a historical language at a certain point of time. Before we begin the investigation we have to put the following questions:

1. How long had the graphemic system of the language in question been in use at the point of time to be focused on in the investigation?
2. Does a literature exist in this graphemic system and how extensive is it?
3. How strict was the control of this graphemic system by the authorities during different periods of its history?

Chapter 2

THE ATTIC GRAPHEMIC SYSTEM

Historical Conditions

1. Like other writing systems of Ancient Greek the OA graphemic system was—directly or indirectly—constructed on the basis of the Phoenician alphabet. This alphabet is assumed (e.g. by Schwyz., *GG* I 141) to have been introduced into Greece about 1000—900, but this early date seems not to be very probable and there is no positive evidence for it, since the earliest extant Greek alphabetic inscription is the graffito on the Attic geometric sherd from Dipylon, dating from ca. 735/25 (*IG* I² 919).

The Attic graphemic system (partially modified by the introduction of the Ionic alphabet in the 5th century) of the period 400—340, accordingly, had a tradition of almost 400 years.

2. Attic literature is far too well known to need any further discussion here.

3. The third question, as to how strictly the orthography was supervised in Ancient Athens, is very difficult to answer. We do not possess very much exact knowledge about education, especially not about the elementary education of the broad mass of the population. In early times, i.e. during the 7th and 6th centuries, the ability to read and write must of course have been very limited. However, it can easily be seen on archaic vases from the beginning of the 6th century that people then began to hold writing in high esteem. It was not until then that writings on vases became common. The vase-painters of that period try to write something on nearly every vase (as far as they are able to; many vase inscriptions are meaningless). The vogue was rapidly established and the writings were often heaped on the vases. This is especially noticeable for example on

the so-called François-vase (ca. 570), on which almost every free space is occupied by inscriptions, containing not only proper but also common nouns. Such an ardour for writing cannot possibly have existed without a decided interest in the matter, not only on the part of the vase-painters themselves but also of the purchasers and users of the vessels. It might be said that the writings on vases are above all decorations, but their esthetic qualities are not so high as to be the only reason for their existence. An indication that the real cause was a wide-spread interest among people in the letters is provided by the fact that the practice of vase inscriptions continued with greater or lesser frequency throughout the 6th century and the following one.

I should like to see in this phenomenon a reflection of an alphabetization process in the Attic population. The frequency and nature of vase inscriptions have not yet been duly investigated, and thus we do not have much knowledge on the subject. But it seems natural, anyhow, to explain the sudden rise and establishment of that fashion as being due to an increasing ability to read and write in the population. Provided that this was the case, and seeing that the marked point of time of its origin is the beginning of the 6th century, there might exist some connection with the political innovations and reorganizations initiated by Solon in the 590's. If so, i.e., if some sort of deliberate alphabetization drive was started, this must imply the establishment of some kind of educational system and possibly some kind of control of orthography.

Under the tyrant Pisistratus (546—528) the Homeric poems were revised, which clearly indicates an interest in literature and attention to the correctness of written texts.

While, as we have seen, we lack any positive knowledge about the quality and extent of the ability to read and write in the 6th century, the situation is markedly different for the 5th century.

Firstly, our earliest express accounts in the literary tradition of schools in Greece refer to the beginning of this century.²⁰ These accounts, however, refer to other regions than Attica. Regarding

²⁰ Hdt. 6,27 mentions a school in Chios in 494, Paus. 6,9,6 speaks of another in Astypalaia, Amorgos, in 491. Plut. *Them.* 10,3 tells us of a state decree of the Troezenians concerning the education of Athenian refugee children in 480 (the latter passage has been suspected of referring to a later period; cf. Ziebarth, *Schulwesen*, pp. 32 f.).

education in Athens there are numerous references in literature,²¹ and there is good reason to assume that it was just as well developed there as in other parts of the Greek world.

Secondly, it is noticeable that representations on vases of writing and reading activities, books, school-teachers and pupils become frequent about 500—490.²² This indicates an increasing interest in education at that time.

After the establishment of democracy by Cleisthenes at the end of the 6th century the political system as such allows us to presuppose an endeavour to propagate the ability to read and write among the people. The very existence of public inscriptions constitutes clear evidence for this. To make inscriptions of innumerable state decrees about different matters and to put up the stones in public places would have been entirely meaningless waste of labour and expense, unless the texts could be read by the people. There is good reason to assume that the authorities wanted as many citizens as possible to be able to read the public inscriptions set up in the Agora, on the Acropolis, and elsewhere and so be able to take part in the political life of the community.

We know that reading and writing was taught to the youths in the palaestra and the gymnasium. The pupils of the gymnasia most probably belonged to the upper classes only.²³ Whether some of the remaining people got any education of that kind is doubtful. There is a clear difference in knowledge of orthographic norm between different kinds of documents.²⁴

However, as our main interest here is not to know what percentage of the population was able to read and write, but whether there existed some control of orthography or not, and, if so, how strict this was, it is enough to concentrate on the evidence for this.

The fact that the official inscriptions contain few instances of orthographic variants as compared with more or less private documents proves that there existed some kind of supervision of those writings. However, the control did not imply a restriction as to the choice of alphabet until 403. The Ionic alphabet was used in many

²¹ For the material cf. Girard, pp. 100—160.

²² Cf. Immerwahr, pp. 17 ff.

²³ Cf. Plat. *Prot.* 326c Μάλιστα δὲ δύνανται οἱ πλουσιώτατοι καὶ οἱ τούτων υἱεῖς, πρωϊαίτατα εἰς διδασκάλων τῆς ἡλικίας ἀρξάμενοι φοιτᾶν, ὀψιαίτατα ἀπαλλάττονται.

²⁴ Cf. below, pp. 56 f.

official inscriptions for a long time before the official sanction of it in 403.²⁵ But—and this is the second point—the change from the Old Attic to the Ionic alphabet was decided by the people and effected immediately and—as regards official documents—almost completely.

During the period 400—350 probably the entire literature written in the Old Attic alphabet was transcribed into the Ionic one in connection with its introduction into education.²⁶

This indicates that the Government had the means required to carry through such a radical reform completely during a short period of time. We know from literary tradition that the theory of public supervision of education was commonly maintained in Athens at classical times, but we also know for certain that schools and education were private.²⁷ However, this does not necessarily exclude a relatively far-reaching control of education through the Government.

We may assert, then, that from ca. 500 onwards the control of orthography was growing more and more strict, above all and originally concerning the official documents, then expanding to education in general.

The answer to the third question may thus be summed up as follows:

During the 6th and the beginning of the 5th century there existed some kind of loose control of orthography by the authorities becoming more and more strict. During classical and post-classical times the public control of education and writing was probably rather strict.

²⁵ G. H. Frogen has shown that the OA graphemic system was definitely replaced by the Ionic one already in 407/6. The only residue of the OA system after that year is the alternative spellings <E>/<EI> and <O>/<OI> that continued down to ca. 350.

²⁶ For the decree concerning education cf. Bekk., *Anecd.*, p. 783,18; (the passage παρὰ Θηβαίους should be read παρ' Ἀθηναίους).

As to the performance of the transcription cf. Herzog.

²⁷ Cf. e.g. Plat. *Crit.* 50d, *Leges* 804d, Isocr. *Areop.* 43; and Arist. *Polit.* 1337a "Ὅτι μὲν οὖν τῷ νομοθέτῃ μάλιστα πραγματευτέον περὶ τὴν τῶν νέων παιδείαν, οὐδείς ἂν ἀμφισβητήσειεν ... φανερόν ὅτι καὶ τὴν παιδείαν μίαν καὶ τὴν αὐτὴν ἀναγκαῖον εἶναι πάντων καὶ ταύτης τὴν ἐπιμέλειαν εἶναι κοινὴν καὶ μὴ κατ' ἰδίαν, ὅν τρόπον νῦν ἕκαστος ἐπιμελεῖται τῶν αὐτοῦ τέκνων ἰδίᾳ τε καὶ μάθησιν ἰδίαν ἢ ἂν δόξῃ διδάσκων."

The Graphemes

This chapter will not contain any regular graphemic analysis aiming at a complete description of graphemic patterns, because that would fall entirely outside the scope of this work, the main point of which is an orthographic relational study (Chapter 5).

When treating orthographic problems in hand-written texts one crucial point is to decide what grapheme the writer intended by a certain graph. This decision is usually quite obvious, namely when the graph can easily be identified as one allograph of a grapheme belonging to the graphemic system in question. Such an identification will suffice. It is of no interest to know, in each case, *which* of the allographs of a given grapheme the writer has written. The only essential thing is, whether the grapheme can be identified with certainty or not.

Sometimes there occur graphs that cannot without doubt be classed as members of certain graphemes. These instances will be marked with factor (2).²⁸

Consequently it is not necessary to dwell here upon allographic variation, i.e. the different letter forms, which, anyhow, vary very much during the long period here treated, so that a series of graphemic analyses would be necessary to account for all of them. The development of the letter forms can be studied in epigraphical handbooks, e.g. Roberts, Larfeld, and Jeffery.

Thus we will concentrate here on the OA graphic units themselves as described in these books.

Since a graphemic analysis of OA has as yet not been performed, we find ourselves compelled to assume that these units are graphemes. In doing so we find that already in the oldest inscriptions the number of graphemes turns out to be almost the same as it continued to be all the time until the introduction of the Ionic alphabet.

The only difference is that the grapheme *koppa* <Ϟ> is found in the earliest inscriptions.

The *digamma* <Ϝ> disappears early as well and occurs only three times (cf. Mhs, p. 3, n. 15), always before or after <Υ>. Irrespective of the possibility of interference from other dialects, its limited distribution prevents us from accepting it as an Attic grapheme.

Consequently the Old Attic grapheme inventory—an outcome

²⁸ Cf. below, pp. 57—59.

of historical and comparative method—may be said to contain the following graphemes:²⁹

1. Autographemes: ⟨A⟩, ⟨E⟩, ⟨I⟩, ⟨O⟩, ⟨Υ⟩.
2. Syngraphemes: ⟨B⟩, ⟨Γ⟩, ⟨Δ⟩, ⟨Z⟩, ⟨H⟩, ⟨Θ⟩, ⟨K⟩, ⟨Λ⟩, ⟨M⟩, ⟨N⟩, ⟨Π⟩, ⟨ϙ⟩, ⟨P⟩, ⟨Σ⟩, ⟨T⟩, ⟨Φ⟩, ⟨X⟩.

During the 5th century the Ionic graphemic system was gradually and partially introduced into the Attic dialect and finally replaced the Old Attic one after it had been officially adopted in 403.²⁵

After the adoption of the Ionic alphabet the Attic graphemic system comprises the following graphemes:

1. Autographemes: ⟨A⟩, ⟨E⟩, ⟨H⟩, ⟨I⟩, ⟨O⟩, ⟨Υ⟩, ⟨Ω⟩.
2. Syngraphemes: ⟨B⟩, ⟨Γ⟩, ⟨Δ⟩, ⟨Z⟩, ⟨Θ⟩, ⟨K⟩, ⟨Λ⟩, ⟨M⟩, ⟨N⟩, ⟨Ξ⟩, ⟨Π⟩, ⟨P⟩, ⟨Σ⟩, ⟨T⟩, ⟨Φ⟩, ⟨X⟩, ⟨Ψ⟩.

As compared with the Old Attic graphemic system this one contains two more autographemes, namely ⟨H⟩ and ⟨Ω⟩. The number of syngraphemes is the same, in that ⟨Ξ⟩ and ⟨Ψ⟩ have been added, while ⟨ϙ⟩ has disappeared and ⟨H⟩ is no more among the syngraphemes.

The introduction of the three graphemes ⟨Ω⟩, ⟨Ξ⟩, and ⟨Ψ⟩ and the transformation of the syngrapheme ⟨H⟩ into an autographeme are the only graphemic changes caused by the change of alphabet. Other modifications are allographic, namely the introduction of new letter forms (the latter had taken place in the Old Attic graphemic system many times before).

²⁹ As notational symbols I use the standard Greek capital letters, although many of them are not found among the letter forms of the OA alphabet. This is possible since the grapheme as well as the phoneme is an abstract unit of a language system and may be designated by any conventional notational symbol.

Chapter 3

A TENTATIVE ATTIC PHONEMIC SYSTEM

Theory

If we want to analyse the phonemic-graphemic relationships of a historical language at a defined point of time or within a delimited chronological period, we must obviously possess on the one hand a *graphemic*, on the other a *tentative phonemic system*. Consequently, a phonemic system must be assumed as a hypothesis and made a basis of investigation.

To be adequate, such a tentative phonemic system must be *explicit*, i.e. it must maintain all the historically possible distinctions that might have existed during the period focused on in the investigation (cf. Weinstock, p. 67).

On the other hand, it should be *simple and economic*, i.e. it should not be more detailed than is justified by the already existing knowledge of the language to be investigated. For example, there is no need to suppose that Attic possessed as many phonemes as, for example, Georgian, or that it contained sounds not found in any Indo-European language.

By these restrictions we are enabled to set up a manageable tentative phonemic system adapted for its purpose, namely to be a practical working hypothesis for the investigation.

As was the case with the graphemic system, we need not here pay attention to the variants of each phoneme. To be able to carry through a phonemic-graphemic relational study, it is enough to know the tentative phonemes and their correspondences in the graphemic system. Unless it proves to be required by the demands just mentioned on an adequate tentative phonemic system, discussions of allophonic problems will be postponed till after the relational study (Chapter 5) and will be taken up in Chapters 6 and 8.

We will adopt a phonemic system presupposed for the period ca.

500—440, i.e. one hundred years before the period in which we are interested.³⁰

When we are to adopt a basic tentative phonemic system of that period we have to build on the knowledge and hypotheses of historical and comparative linguistics as laid down by leading grammarians. As our source we have adopted the standard work of E. Schwyzler, *Griechische Grammatik* I (München 1939) pp. 178—414.

Unfortunately, Schwyzer does not make use of the concept of phoneme, and accordingly does not present a proper phoneme inventory. This is also true of most later descriptions of Attic phonology, for instance by Sturtevant, Grammont (*Phonétique*), and Lejeune. Brandenstein (*Sprachwiss.*, pp. 71 ff.) presents "Das griechische Phoneminventar", but the author discusses various other Greek dialects and does not state explicitly, if an Attic phoneme inventory is meant. Thus it will be admissible to construct—according to current principles of phonemic analysis (see above, page 21)—a tentative phoneme inventory that meets our requirements, namely explicitness and economy. We have chosen Schwyz., *GG* I as our source only because that work is the most exhaustive available. On the basis of the wide information offered in that grammar we will set up a tentative phoneme inventory for the period mentioned, combining the data synchronically as far as this is possible.

Tentative Phoneme Inventory of Attic 500—440 B. C.

1. Vowels

/i/ /y/ /u/
/e/ /o/
/ɛ/ /ɔ/
/æ/ /ɒ/
/a/

³⁰ The choice of that period was arbitrary but can easily be justified. If a later period had been chosen, some phonemic distinction might not have been included, and to choose an earlier period was unnecessary for the purpose of getting a sufficiently differentiated phoneme inventory.

2. Consonants

Stops	unaspirated	voiceless	/p/, /t/, /k/
		voiced	/b/, /d/, /g/
Fricatives	aspirated	voiceless	/p ^h /, /t ^h /, /k ^h /
			/s/, /h/
Resonants	liquids		/l/, /r/
	nasals		/m/, /n/ (with allophones [ŋ] / ₋ [velar stop], and [ɲ] elsewhere).

3. Length $/:/$

4. Pitch //

This tentative phonemic system may be examined by commutation tests. Such analyses have been performed lately by L. Lupaş. Since she treats the Attic of the 5th century, her results are applicable to our tentative phonemic system as a verification of it. But cf. below, p. 38, n. 33.

Commentary

It should be noticed that all statements made below refer to the tentative phoneme inventory tabulated above.

Attic had one series of short and one series of long vowels. Only /ε/, /æ/, /ο/ are always long, and /ο/ is always short. Most consonants are now short (simple), now long (geminated).

It is not adequate to describe short and long vowels and consonants respectively as separate series of phonemes,³¹ because "when a long vowel is phonemically in contrast to a short vowel and is structurally analogous to clusters of diverse vowels, the long vowel must be considered a sequence of two short identical vowel phonemes".—"Long consonants are analysed in a manner similar to the analysis of long vowels".³²

³¹ The short and the long series of Greek vowels have traditionally been considered different series of phonemes. Some scholars have looked upon the consonants in the same way, e.g. Stang, *Symb. Oslo*. 33 (1957) 35, and Lupaş, *Stud. Clas.* 8 (1966) 7—15.

³² K. Pike, pp. 138b and 139a. Cf. also Martinet, *Économie*, p. 138.

There is very good reason to suppose that it can be shown by a commutation test that these conditions are fulfilled in Attic. However, such an analysis must be postponed until Chapter 8, because commutation tests should not be performed until an orthographic relational study has been carried through.³³

Long vowels or consonants may, then, be described as sequences of identical phonemes. Strictly speaking, it would not be necessary to count a separate phoneme /:/, but this is justified by the phonetic characteristics that usually accompany the lengthening. For practical reasons the terms "long vowel", "long consonant" (and even "phoneme") are used in the present work to denote /V/+/:/ and /C/+/:/.

Our knowledge of Attic accent originates, not from contemporary, but indirectly from later graphemic evidence, namely the Alexandrian diacritic system designed about 200 B.C. and found in papyri from the 2nd c. B.C. Further evidence is provided by orthography and by discussions in ancient authors (e.g. in Aristotle, Aristoxenus, and others) and also from comparative studies of accent in other IE languages.

Since no further evidence about Attic accent can be gained by the study of the graphemic system before 200, and the orthophonic (cf. above, p. 22, n. 14) evidence from the time in question is very

³³ The raw material for a phonemic analysis is constituted by phonetic data. For historical language stages older than the technique of sound recording, phonetic data in a strict sense are not available. We must dispense with the rigorous claim for such data and be content with approximations. But an indispensable demand is that such approximations should be as exact as possible. That is why a systematic orthographic relational study must precede phonemic analytic procedures, e.g. commutation tests.

However obvious the fact, then, that commutation tests for demonstrating the phonemes of a historical language at a given period cannot be based straight away on the orthographic norm of the graphemic system, this is exactly the method practiced by phonologists up to the present (most recently in the systematically performed analyses by Lupaş). The graphemic system cannot be taken as raw material for a phonemic analysis, as if it were a one to one phonetic transcription, especially after it has been in use for hundreds of years (cf. below, pp. 46 f.) Until a relational study has elucidated—as far as possible—the phonetic pattern of a historical language, commutations are strictly speaking not between phonemes but between graphemes.

scanty this problem may be discussed at some length already at this stage.

The main function of Greek accent was the culminative:³⁴ to mark the syntactic unit of word. It is generally agreed that the predominating phonetic characteristic of this word accent was high pitch. As the location of pitch was highly determined by a set of phonological rules, its distinctive function was very limited. But since there exist (tentative; cf. note 33) minimal pairs, e.g. τόμος : τομός, νόμος : νομός, τρόχος : τροχός, θηρότροφος : θηροτρόφος etc. the feature of location of high pitch is distinctive, and the high pitch is a phoneme.

It is also generally agreed that Ancient Greek accent must be defined in terms of the concept of mora,³⁵ the minimum unit of vowel length.

We have already mentioned that Greek accent was culminative: it was concentrated on one point of the word. Further, it can be stated that the unit of pitch location was, not the syllable, but the mora. Only one mora in each word could receive the high pitch. The non-high (low) pitch that covered all morae except the one with the high pitch is phonemically irrelevant.³⁶

These statements are made possible by the fact that two successive morae could not have high pitch. Evidence for this can be found in the accentuation of words that are followed by an enclitic. This is the only case when a word can receive two high pitches (the second being the manifested potential accent of the enclitic). These two high pitches must be separated by one or more low pitch morae

³⁴ Cf. Jakobson, *Sel. Writ.*, p. 469.

³⁵ Lupaş, *Phonologie*, p. 178, describes Attic accent in the traditional way, namely in mora terms, and then (p. 179) renounces the mora without being able to give a new definition, thus illustrating the difficulty or impossibility of a definition independent of the mora.

³⁶ This accent structure is thus phonemically identical with that of languages with a (partially) free stress accent, for example Modern Greek, where the placement of stress is distinctive: φόρα : φορά, etc. MG accent is basically a stress accent accompanied by pitch. The situation may have been the reverse in Ancient Greek. Anyhow the difference between Attic and MG accent is phonetic, not phonemic.

For the origin of our (Byzantine) convention to use the grave instead of the acute on the final syllable in running text and its equivalence to high pitch cf. Schwyz., *GG* I 374 f.

followed by a syllable boundary [-]. So δῶρόν ἐστιν [dóðrónèstìn],³⁷ φίλον τινά [phílòn tìná], and ἄνθρωπου τινός [ànthròpùù tìnós] are possible, but *φίλος ἐστιν [phílósèstìn] and *ἄνθρωπού τινός [ànthròpùùtìnòs] are not.

This structure has been convincingly accounted for by Allen³⁸ through his "contonation" theory: the high pitch is always combined with, i.e. immediately followed by, a falling glide (phonologically non-high pitch), so that the accent always has a contour of the form $\wedge$ or $\wedge$. Thus the only difference between the acute and the circumflex is that the former is an intersyllabic, the latter an intrasyllabic, variety of the same type of accent. The traditional view that there existed a phonological opposition acute : circumflex³⁹ has been due to the disregard of the falling glide as being phonetically integrated into the accentual pattern, and thus one has not observed that the only distinctive feature of Greek accent was the location of high pitch. Ancient Greek did not possess a tone phoneme (toneme) like Norwegian or Swedish.⁴⁰

The phonemes /i, e, a, o, u, y/ combine *inter se* to make the following short diphthongs:⁴¹ /ai/, /oi/, /yi/, /eu/, and /au/.

There is no reason not to describe all these diphthongs, i. e. also the i-diphthongs as sequences of phonemes (cf. Lupaş, *Phonologie*, pp. 121—123).

The phonemes /i, ε, æ, a, o, u/ and /:/ combine to make the following long diphthongs: /ε:i/, /æ:i/, /a:i/, /o:i/, /ε:u/, /æ:u/, /a:u/, and /o:u/.

³⁷ The notations [VV] instead of [V:], and ['] instead of [Ø] are used here only for the sake of clearness.

For the location of the high pitch cf. Brandenstein, *Sprachwiss.*, pp. 108 f.

³⁸ *A Problem*, pp. 8—13 and *Vox Graeca*, p. 114.

³⁹ E.g. Kuryłowicz, pp. 106—113, Martinet, *Ling. Syn.*, p. 151, and Lupaş, *Phonologie*, p. 179.

⁴⁰ Cf. Martinet, *Ling. Syn.*, p. 151, n. 2. The problems discussed by Martinet have no reality. The category of mora is essential to Ancient Greek but not to languages possessing tonemes. The unit of placement of tone is usually the syllable. Cf. Borgström, pp. 260—263.

⁴¹ Of course it is not necessary to describe the short i-diphthongs as separate phonemes only because of their coming monophthongization, which Brandenstein, *Sprachwiss.*, p. 74, maintains. The two allophones of different phonemes (phonologization), a common process in most languages; cf. e.g. Swedish [sk] > /f/ /- [front vowel].

According to Schwyz., *GG* I 186, the sound [æ:] existed down to the end of the 5th c. As for the long diphthongs /ε:i/, /ε:u/ (Proto-Greek) and /æ:i/, /æ:u/ (originating from /a:i/, /a:u/) Schwyz. (pp. 200 f.) gives no information whether or not the phonemic distinction /ε/ : /æ/ is thought to have remained during the 5th c. in diphthongs as well. The distinction is retained here for the sake of explicitness.

The sound [h] is set up as a tentative phoneme /h/. Its phonemic status has been denied by several scholars, e.g. Bartoněk and Brandenstein.⁴²

It is generally agreed that the possibly existing aspirated [r] as well as the voiced [z] (Schwyz., *l.c.*, p. 217) in some environments have allophonic, not phonemic status. Consequently, there did not seem to be any reason to set up these sounds as tentative phonemes.

Having denominated this phonemic system *tentative* we will scrutinize its distinctions in the light of the evidence supplied by the graphemic system, through a study of orthographic variations (Chapters 5—6) and by other kinds of evidence (Chapter 7).

All those phonemic distinctions for which there is no evidence to be gained from primary graphic (Chapters 5—6) or secondary material (Chapter 7) will then be eliminated, and new distinctions will be added if there is evidence to show their existence.

⁴² Bartoněk, *Consonants*, p. 176, uses the term "opening signals" referring to spiritus asper and spiritus lenis.

Brandenstein, *Sprachwiss.*, p. 100, characterizes the sound [h] in ὅς as "nur eine relevante Eigenschaft" and then denies its phonemic status.

THE CORRESPONDENCES BETWEEN THE GRAPHEMIC SYSTEM AND THE TENTATIVE PHONEMIC SYSTEM OF OLD ATTIC

Historical Conditions

There is good reason to suppose that the Old Attic graphemic system was originally constructed as a roughly phonemic transcription.

This assumption is possible because we have some knowledge about the phonemic structure of the Phoenician language, whose graphemic system was borrowed by the Greeks. We also know that some redundant graphemes, i.e. without corresponding phonemes in Greek, were not accepted at all and that some others fell into disuse very early, while on the other hand some new additional graphemes were created. Furthermore, etymology supplies much information.

We observe, then, a clear tendency to bring about a writing system built on the principle of one to one phoneme-grapheme correspondences, i.e. a phonemic transcription. However, the goal was of course not fully reached, which can be shown by the following sketch, in which we also study the evolution of the phonemic system from the time of the introduction of the writing system down to the period 500—440.

As in the preceding chapter, the source is Schwyz., *GG* I. According to this work, graphemes and (tentative) phonemes correspond to each other in the following way (of course, the correspondences listed are tentative, seeing that our phonemic system is so):

Correspondences

Autographeme(s)	Vowel phoneme(s)	
	originally	500—440
<Ι>	/i(:)/	/i(:)/
<Ε>	/e(:)/, /ε:/, /æ:/	/e(:)/, /ε:/, /æ:/
<Α>	/a(:)/	/a(:)/
<Ο>	/o(:)/, /ɔ:/	/o/, /ɔ:/, /u:/
<Υ>	/u(:)/	/y(:)/
<ΕΙ>	/ei/, /ε:i/, /æ:i/	/e:/, /ε:i/, /æ:i/
<ΟΥ>	/ou/, /ɔ:u/	/u:/, /ɔ:u/
<ΑΙ>	/a(:)i/	/a(:)i/
<ΟΙ>	/oi/, /ɔ:i/	/oi/, /ɔ:i/
<ΥΙ>	/yi/	/yi/
<ΕΥ>	/eu/, /ε:u/, /æ:u/	/eu/, /ε:u/, /æ:u/
<ΑΥ>	/a(:)u/	/a(:)u/
<Η>		/ε:/, /æ:/
<Ω>		/ɔ:/

Syngrapheme(s)	Consonant phoneme(s)	
	originally	500—440
<Β>	/b/	/b/
<Γ>	/g/	/g/, /n/
<Δ>	/d/	/d/
<Ζ>	/sd/, /ds/	/sd/, /ds/
<Η>	/h(ε:)/, /h(æ:)/	/h(ε:)/, /h(æ:)/
<Θ>	/t ^h /	/t ^h /
<Κ>	/k(:)/	/k/
<Λ>	/l(:)/	/l/
<Μ>	/m(:)/	/m/
<Ν>	/n(:)/	/n/
<Π>	/p(:)/	/p/
<Ρ>	/r(:)/	/r/
<Σ>	/s(:)/	/s/
<Τ>	/t(:)/	/t/
<Φ>	/p ^h /	/p ^h /
<Χ>	/k ^h /	/k ^h /

Syngrapheme(s)	Consonant phoneme(s)	
	originally	500—440
<ΓΓ>		/g:/, /ng/
<ΚΚ>		/k:/
<ΛΛ>		/l:/
<ΜΜ>		/m:/
<ΝΝ>		/n:/
<ΠΠ>		/p:/
<ΡΡ>		/r:/
<ΣΣ>		/s:/
<ΤΤ>		/t:/
<ΦΣ> (<Ψ>)	/p ^{hs} /	/p ^{hs} /
<ΧΣ> (<Ξ>)	/k ^{hs} /	/k ^{hs} /
<ΦΘ>	/p ^{hth} /	/p ^{hth} /
<ΧΘ>	/k ^{hth} /	/k ^{hth} /
<Ο>	/k(:)/	

Commentary

The discussion below is based entirely on the information provided by Schwyz., *GG* I.

The tentative phoneme /s/ in the combination /sd/ (or /ds/) corresponding to <Ζ> is realized phonetically [z]. The original [dz] underwent metathesis (Schwyz., *l.c.*, p. 331, Zusatz 3, and 217). Since Schwyz. does not state at what time this change was accomplished, the sequence /ds/ is retained here.

The tentative phoneme /n/ when corresponding to <Γ> is realized phonetically [ŋ].

The phonemic sequence /ng/ (phonetically [ŋg]) originally corresponded to a graphemic sequence <ΝΓ>. For /g:/ cf. Schwyz., *l.c.*, p. 317.

As Schwyz. (pp. 210 f.) does not decide on the problems concerned with the combinations <ΦΣ>, <ΧΣ>, <ΦΘ>, and <ΧΘ>, their phonemic correspondences have been set up here according to analogy.

The phoneme /:/ originally lacked graphemic correspondences. The doubling of syngraphemes (<σσ>) corresponding to long conso-

nants (/C:/) was gradually introduced from about the end of the 6th c. (By the introduction of the Ionic alphabet the long vowels /ε:/, /æ:/, and /ο:/ received graphemic correspondences, namely <Η> and <Ω>.)

The pitch phoneme /' had no graphemic counterpart.

We observe that the changes which are supposed to have taken place from the time when the graphemic system was constructed down to the period 500—440 are very few. In the graphemic system the grapheme <Ο> has disappeared and the doubling of syngraphemes has been introduced, while the phonemic system shows the following changes only:

/ei/ > /e:/, /ou/ > (/o:/ >) /u:/, /u(:)/ > /y(:)/, and /kg/ > /g:/.

With these exceptions the whole system of phoneme-grapheme correspondences has—as stated by our authority Schwyz., *GG* I—remained intact during a period of ca. 300 years. Such stability in a phonemic system is possible, but since we know that phonemic systems usually change more rapidly than the Attic one as described above, we may suspect that one of the two phoneme inventories tabulated does not correspond to reality.

Moreover, as our interest is concentrated on the period between 400 and 340, a broad investigation into the problem by means of a systematic examination of the relationships between the phonemic and the graphemic systems seems to be well justified.

A PHONEMIC-GRAPHEMIC RELATIONAL STUDY OF THE ATTIC DIALECT

Theory and Method of Investigation

Suppose that graphemic systems are not autonomous in relation to phonemic ones, but are regularly adapted to, and truly reflect, the structure of the latter. In that case the task of the phonemicist in reconstructing the phoneme inventories of historical languages at given points of time would be rather easy, and the present laborious investigation would be totally superfluous.

For example, the Greek phonetic change [e:] > [i:] involving the abolition of the phonemic opposition /e:/ : /i:/ (dephonologization through merger /e:/ > /i:/; cf. below, p. 166) would necessarily cause a corresponding graphic-graphemic change <EI> > <I> (i. e. abolition of the graphemic opposition <EI> : <I>), and this change must be almost simultaneous with that in the phonemic system.

As a matter of fact, this graphemic accommodation has as yet not taken place, although we know fairly well that the phonemic change was accomplished more than 2000 years ago. This phenomenon is paralleled by numerous other cases in Greek, and it is a conspicuous fact that in almost all languages, as soon as a graphemic system has existed for a couple of centuries, there have arisen some striking discrepancies in the original phoneme-grapheme correspondences.

Nevertheless, most students of Greek historical phonology have unsuspectingly concentrated on the orthographic norm (cf. above, p. 38, n. 33) without paying attention to, or even detracting from, the evidence supplied by infrequent orthographic variants, i.e. the graphemic system has been looked upon as a reflection of the phonemic one. Only on those points where the orthography was *changed* (totally or partially), as for example when the Boeotians

adopted the Ionic alphabet or when the large-scale overlapping set in between <OY> and <O>, and <EI> and <E> respectively after the monophthongization of the diphthongs /ou/ and /ei/, resulting in an *alternative orthography*, have the phonemic changes been generally recognized.⁴³

Since, as we have seen, even a phonetic change causing dephonologization⁴⁴ very often does not produce a corresponding graphemic change, a phonetic change that does not affect the number of phonemes, i.e. a rephonologization⁴⁴ (e.g. Lat. /u/ > Fr. /y/ or Ionic-Attic /u(:)/ > /y(:)/), is very unlikely to cause a change in the graphemic system or even to give rise to orthographic variation. Thus, it is apt to escape discovery by phonologists, who take little or no notice of rare instances of orthographic deviations. The Attic /u(:)/ > /y(:)/ was recognized only thanks to the existence of the grapheme <ϙ> in early Attic documents, and to Boeotian <OY> corresponding to Ionic-Attic <Y> after the introduction of the Ionic alphabet. The orthographic variations <Y> ~ <I>, <Y> ~ <E>, <Y> ~ <H> etc. are not referred to as evidence that <Y> did no more represent /u(:)/. Schwyzer (*GG* I 183) does not even mention the existence of such variations (documented e.g. Kr., pp. 119 f.), although he himself (p. 180, Zusatz 2) appears to have realized the importance of infrequent orthographic variants.⁴⁵

The idea of the great evidential value of rare instances of orthographic variants has been repeatedly maintained by many scholars from the nineteenth century onwards.⁴⁶

⁴³ Allen, *Vox Graeca*, p. 79, and Lupaş, *Phonologie*, p. 34, deny monophthongization of [ei] /_[V] until the 4th c.

⁴⁴ For definition see below, p. 166.

⁴⁵ "Während für den Philologen die anerkannte klassische Orthographie, wie sie durch das Zeugnis guter Inschriften und Handschriften und der Grammatiker festgestellt wird, massgebend ist ..., kommen für die Lautgeschichte ebenso sehr oder noch mehr die vom Standpunkte der orthographischen Norm fehlerhaften Varianten in Betracht."

⁴⁶ Hatzidakis, *Einleitung*, p. 305. "Da die altgriechische Orthographie immer beibehalten worden ist, bleiben die wichtigsten Sprachveränderungen für das unaufmerksame Auge verborgen."

J. Schmitt, p. 10 "Kommt in einem und demselben Texte z.B. zehnmal κλέπτῃς und nur einmal κλέφτης vor, dann wissen wir, dass die Tenuis vor einer Tenuis zum Spiranten geworden ist; denn das eine Beispiel beweist es ja, und wir ersehen zu gleicher Zeit aus dem andern, dass der Schreiber trotzdem unverdrossen fortfährt, in der herkömmlichen Weise κλέπτῃς u.s.w. zu schreiben. Besonders in den mit der alten Flexion zusammenfallenden

Once this idea had been realized one would have expected the students of Greek phonology to penetrate into the material by comprehensive studies of the whole amount of orthographic variations in order to acquire optimal knowledge of the matter. It is rather striking, then, to see how very little has been done in this field of research. The pioneer works of Kretschmer (1894), Meisterhans (3rd ed. by Schwyzer 1900), Rabehl (1906), and Lademann (1915) have been followed by one single work, namely A. Stroh-schein, *Auffälligkeiten griechischer Vokal- und Diphthongschreibung in vorchristlicher Zeit*, (Greifswald 1940.) Unfortunately, this treatise with its abundant material has been almost entirely neglected. Although methodically deficient, its aiming at an extensive collection of instances of infrequent orthographic variants is of great value.

Only the works mentioned aim at a certain degree of completeness, while all the rest are selective, in spite of the fact that a complete account of the entire extant material is the first prerequisite of a proper evaluation of the data.⁴⁷ One of the purposes of the present investigation is to present such a complete collection of data.

Verbalausgängen wie ἐδέχθησαν war es kaum möglich, die Neuerung ἐδέχθησαν einzuführen".

Larf., p. 171 "Eine Geschichte der griechischen Lautlehre würde sich daher nur im engsten Anschluss an die orthographischen Eigentümlichkeiten der Inschriften entwerfen lassen". — *L.c.*, p. 172 "Aus diesen Andeutungen geht hervor, dass die Orthographie der Inschriften sich von einer streng einheitlichen Durchführung des phonetischen Prinzips weit entfernt Völlig verfehlt würde die Annahme sein, dass mit dem beginnenden oder selbst durchgeführten Wandel der Aussprache auch alsbald die herkömmliche Schreibweise entsprechend geändert worden wäre".

Larf. thinks of later stages of Greek, but of course these principles are equally well applicable to classical times.

McIntosh, p. 28 "Only by understanding the limitations of the correlation (between the two systems) can we, for one thing, make proper use of the available written material as evidence about the spoken language".

L.c., p. 35 "Orthographic variation rarely attracts much interest unless it offers at least the possibility of clues about phonetic variation or unless ... some variant form is at once striking and rare".

Hoenigswald, p. 6 "Great importance must be attached to occasional (but still, in order to exclude mere accident, recurrent) deviations or misspellings".

⁴⁷ As a typical representative of the prevailing depreciation of the evidence of orthographic variants as compared with that of the norm can be mentioned

The second prerequisite for a proper evaluation of the data is a well-defined theoretical basis for this, i.e. an unambiguous method of measuring the phonetic evidence of each instance of an (infrequent) orthographic variant.

I believe that a measuring rod can be found in the orthographic norm.

Before we discuss this theory, some conceptual problems should be treated.

The present study of the phonemic-graphemic relations of Attic is a descriptive study with normative aspect. This kind of relational study may be called a normative study (cf. above, p. 8). It should be noticed that the term normative is not used here as a synonym of "prescriptive". The concept of norm used in this book is purely

Lupaş, *Phonologie*, p. 16: "La prononciation du dialecte attique à l'époque qui nous intéresse est en lignes générales connue ... recherches en ce domaine ont fait l'objet de plusieurs livres ..." The books referred to are Blass, Mhs, Schwyz., *GG* I, Sturtevant, Lejeune, and Allen, *Vox Graeca*. Only Mhs comprises (most of) the orthographic data then (1900) available.

In the nineteenth century the scanty material available made it possible to hold opinions such as that maintained by Blass (p. 37) "... einzelne Beispiele von vertauschtem η und ι ... (vermögen) um so weniger ein Gewicht abzugeben, als diese Beispiele einer kritischen Prüfung schlecht stand halten".

But only the lack of a complete account of actually existing material may explain that such obsolete opinions can still be mechanically repeated in 1968. Cf. Allen, *Vox Graeca*, p. 71: "Confusion between η and ι in Attic inscriptions begins around 150 A.D.". The statement is evidently a repetition of Mhs, p. 19,7: "η wird seit 150 n.Chr. vereinzelt mit ι vermenget".

Further, the method of minimizing existing evidence practised by nineteenth century scholars has not yet been abandoned: Cf. Allen, *l.c.*, p. 71, n. 1 "Startling but quite aberrant is the 5 c. B.C. αθινα αρις αρτεμις on a slate of a schoolboy signing himself διμοσθενις (sic)".

Allen does not even mention that this inscription is the only one published out of about a hundred, which—according to the editor—contain a large number of iotacisms of the same sort.

There are 48 instances of "confusion between η and ι" before 200 B.C. (below, pp. 90—92, Vars. 17—19).

Cf. also *l.c.*, p. 66: "The development of ει to [i] is revealed by occasional confusion between ει and ι from the late 4 c. B.C., becoming common in the 3 c. But there is no such confusion in earlier times".

This statement is incorrect. Cf. below, pp. 75—80, Vars. 1—3: there are 53 instances of "confusion between ει and ι" before 400. Moreover, this phenomenon is not more common in the 3rd c. than during the preceding centuries.

Statements such as those quoted can be found *passim* in different works on ancient Greek pronunciation.

statistical: the variant with the markedly highest relative frequency constitutes the norm.

The terms to be used in normative relational studies are those with ortho-: orthography, orthophony etc.

The concept of *orthographic variant* can be defined as one (of the different) way(s), in which a given phoneme is permitted by the reading population to be graphically represented.

Ex.: The Greek phoneme /i:/ may be represented by (among others) the graphemes <I> and <H>, but not, for example, by <Ω> or <X>. I.e. the graphemes <I> and <H> are possible orthographic variants corresponding to the phoneme /i:/, while <Ω> and <X> are not. In a purely descriptive study all the allophonographs (graphemes) corresponding to a given phoneme should be listed and accounted for, while in a normative study the latter two in the example above will not be treated, because they are non-orthographic, i.e. they can never have been caused by orthographic transposition, but must have non-phonetic causes of origin (cf. below, p. 55).

In other words, the essential feature of a normative study of the relations phonemic system → graphemic system, i.e. an orthographic study, is the aspect of permissibility, viz. of graphemic correspondences to a given phoneme.⁴⁸

The permissibility of a given orthographic variant is related and proportional to the relative frequency of that variant. The most frequent orthographic variant representing a given phoneme possesses the highest degree of permissibility and may be designated the orthographic norm for representing that phoneme. (The orthographic norm may be constituted by more than one variant.)

Now the basic principle for measuring phonetic evidence—cited below as *Principle 1*—may be formulated in the following way:

The more fixed the orthographic norm,⁴⁹ the greater is the phonetic evidence of each fully valid⁵⁰ instance of an orthographic variant.

⁴⁸ *Mutatis mutandis* this is of course also true of a study of the relations looked upon in the opposite direction, i.e. an orthophonic study.

⁴⁹ In other words: the greater the relative frequency of the orthographic norm, etc.

⁵⁰ A graph is a fully valid instance of an orthographic variant only if all non-phonetic factors as possible causes of its origin have been eliminated (cf. below, pp. 55—63).

Three cases will show how this principle works:

Case 1. During the period 400—350 B.C. the orthographic variants <EI> and <E> occur with roughly the same frequency, corresponding to a sound of—according to the most common opinion—e-quality <ε + ε or compensatory lengthening (not the monophthongized original diphthong ει, which is more regularly represented by <EI>). The variants <EI> and <E> have a relative frequency of approximately 55 : 45. <E> represents the traditional Old Attic, <EI> the new Ionic way of writing.

In this case the variant with the highest frequency cannot be said to constitute an orthographic norm at all. Thus each fully valid instance of the other one represents a *minimum of phonetic evidence*.

Case 2. In the Old Attic graphemic system <E> corresponds—according to the table above, p. 43—(among other phonemes) to /ε:/. (In the Ionic graphemic system often used in Attic inscriptions even before 403 B.C. <H> corresponds to this phoneme.)

In this case <E> (in the Ionic graphemic system <H>) predominates very markedly; its preponderance over other variants is probably 99 : 1. Thus each fully valid instance of those other variants represents a *maximum of phonetic evidence*.

Between these extremes there may theoretically exist an infinite number of intermediate cases. In reality the two cases described above are the most common.

The degree of firmness of orthographic norm varies, then, very much from phoneme to phoneme and the evaluation of instances of different orthographic variants consequently differs from case to case.

In case 1 above we observed that neither of the two orthographic variants <EI> and <E> could be described as the orthographic norm: it was quite permissible for the writer to use either of these variants to represent the phoneme in question. Thus in this case *the two variants taken together* constitute the orthographic norm. We now get

Case 3. The orthographic variants <EI>/<E> corresponding to a sound originating from ε + ε or compensatory lengthening taken together predominate over other variants in a proportion of approximately 98 : 2. The phonetic evidential value of each fully valid instance of these other variants is, consequently, very high.

With the above three cases it has been illustrated how the principle works. Its function is totally synchronic. This principle may

probably work in all normative phonemic-graphemic relational investigations of historical stages in a language.

It is obvious, then, that only instances of *infrequent* orthographic variants possess a high phonetic evidential value. These are the variants that constitute the principal subject of the present investigation. The more frequent variants have been tolerably well accounted for previously by Meisterhans, Lademann, and others. The second reason to concentrate on the most infrequent variants only is the fact that a full utilization of *Principle 1* by numeric methods—for which it is actually designed—is impossible unless we know exactly what is the relative frequency of each variant, i.e. also the norm, or each variation, which presupposes a counting of all instances.⁵¹

But such a counting is a task for a computer, and until that procedure has been carried out we must content ourselves with approximations when we decide which member(s) of a variation is to be denominated the orthographic norm, and what the relative frequency of the variants is. These approximations have been founded on the statements in Meisterhans, which were controlled and verified through direct observation of the conditions in the texts by reading.

It should be borne in mind that—according to the definition above, p. 50—the concept of orthographic norm used in the present work is statistical. This is true also of Meisterhans. Thus etymological and lexical forms are not seldom found to be rare orthographic variants rather than orthographically normal.⁵²

When it has become apparent, then, which member(s) of a given variation show(s) a markedly predominating relative frequency, this is designated the orthographic norm and established as a basis of reference for the orthographic study. That is to say, all instances of orthographic variants other than that designated the orthographic norm are collected.

Here four problems should be considered.

Firstly, it is obvious from the above discussion that the fixedness of the orthographic norm varies somewhat *between* the variations examined in the present study. In some variations the relative frequency of the norm is very high, about 99 %, e.g. in the variation <H> ~ <I>, in others it may attain approximately 90 %, e.g. in the variation <AI> ~ <A> (corresponding to tentative /ai/). However, since the phonetic evaluation of the data according to *Principle 1* cannot, as we observed above, be performed by numeric methods, these differences in fixedness of the orthographic norm cannot be taken into consideration. Having sorted out all variations, in which none of the variants (or two or more taken together) shows a markedly dominating relative frequency, i.e. at least 90 %, we may therefore assume that there is *no significant difference* as to fixedness of orthographic norm *between the variations here examined*.

Secondly, the orthographic norm is not equally fixed in all the different morphemes represented *within* each variation.

It is easy to see that the orthographic norm for representing, for example, the (tentative) phoneme /i/ is not equally fixed in the language as a whole, but varies from morpheme to morpheme, roughly according to their absolute frequency. The more frequent the morpheme (for example case-mood morphemes), the more fixed is the orthographic norm. In other words: the writers knew very well how to write grammatical morphemes recurring over and over again, but when writing, for example, infrequent proper nouns they more often produced deviations from the norm.

This implies that not all the fully valid instances of a given orthographic variant have in reality—according to *Principle 1*—equal phonetic evidence. This variation should of course be accounted for explicitly, but that presupposes a morpheme frequency analysis comprising the whole language, which has not hitherto been carried out for Ancient Greek. Consequently we must for the present dispense with such a detailed grading and rely on the direct observation of the data when reading the texts (with Mhs as a basis of reference).

Just as orthographic variations are not included in the data, if the norm cannot be proved to be sufficiently fixed, all morphemes with an insufficiently fixed orthographic norm are excluded. Consequently, for almost all the morphemes represented in the data the predominance of the orthographic norm may be estimated to ca. 90—99 %. For a few morphemes it may be only ca. 75—90 % or

⁵¹ With such an analysis as a basis a quantification of the phonetic value of instances of orthographic variants would be possible. Each instance would be assigned a numeric value according to the relative frequency of the variant to which it belongs.

⁵² For example Mhs, p. 24,15 Τροζήνιος, 35,11, n. 189 Ἀλκμέων etc., and Kr., p. 131,113 Χίρων, Σχίρων, Σαληνός etc.

in exceptional cases even lesser. However, these few instances will constitute only a marginal element and thus will not influence the phonetic evaluation of the data. We may, then, presuppose that there is *no significant intermorphemic variation* as to the fixedness of orthographic norm.

Thirdly, the fixedness of orthographic norm varies somewhat chronologically. This fluctuation may affect individual morphemes as well as orthographic variations as a whole. Thus, a morpheme or a variant may temporarily attain a relative frequency exceeding that mentioned above. However, since it is not possible to find out manually the exact frequencies, we must allow for such temporary fluctuations and presuppose that there is *no significant chronological variation* as to the fixedness of orthographic norm in the data examined in this work.

Fourthly, there are considerable differences between different documents. In some documents an otherwise infrequent orthographic variant may even be the most frequent, i.e. the norm. Such inter-documental variations cannot and need not be considered: The corpus is looked upon in its entirety.

We have seen, then, that a full use of *Principle 1* is not possible without a complete mapping of the morphemic and orthographic conditions of the language investigated. Until this work has been done we are compelled to use *Principle 1* only as a sort of lodestar. This may seem to be a considerable disadvantage, but it is probably not. The most important differences in fixedness of norm in different orthographic variations can be found out even without using a computer, and an extreme quantification of this kind of data is useless, because there does not exist any exact amount of phonetic evidence that can be said to be necessary for drawing a certain phonemic conclusion. The conclusions must always be approximative even when founded on an explicit analysis.

These considerations, however, do not diminish the reliability of *Principle 1* as such. According to it each instance of an orthographic variant may be very important and should be examined thoroughly as to its cause of origin. For this purpose we will make use of a special system of non-phonetic factors.

So far, we have spoken only of *fully valid* instances of orthographic variants. A graph is called a fully valid instance only if, in considering possible causes of origin, *all non-phonetic factors have been eliminated*, i.e. the cause is *transposition*.⁵³

Orthographic transposition is the transfer of phonemic patterns into the graphemic system, so that this is made a—more or less exact—(visual) reflection of the phonemic one in the point affected. (The process of transfer in the opposite direction is called orthophonic transposition.)

There exist two types of causes of orthographic variation:

1. Transposition, i.e. phonetic causes.
2. Non-phonetic causes.

There is no third alternative.

The non-phonetic causes constitute the most difficult problem in this field of research, and consequently they have caused much discussion and have been one of the reasons why opinions on ancient Greek pronunciation have diverged so much. There has always been an arbitrary evaluation of so-called “scribal failures” or “scribal confusions” and the like, totally at one’s discretion. There has always been a lack of a clearly defined system, according to which each instance of an orthographic variant could be classified and so be ranked as to its phonetic evidential value. This methodological deficiency is rather astonishing, as is the prevalent selective method in treating a kind of data that must be treated comprehensively.⁵⁴

It ought to be a truism that “terms” such as those mentioned above have no place in orthographic studies. The hitherto practised *ad hoc* treatment of rare orthographic deviations must at last come to an end.

I will make an attempt here to solve the problem by introducing a factor system containing seven factors. According to defined rules each instance will be marked with one or more or none of these factors. The theoretical basis for marking is *possibility* of a non-phonetic cause of origin of the instance: If an instance of an orthographic variant may with some probability have originated from a

⁵³ The term has been used by Hjelmslev, p. 104.

⁵⁴ Cf. above, p. 48.

non-phonetic source, its phonetic evidential value is partially reduced, which is indicated by the markings.

Writings where non-phonetic causes can be proved *with certainty* are of course irrelevant and have not been included in the data. The nature of such writings is described below under the factors respectively.

Non-Phonetic Factors of Orthographic Variation

A. Graphic/graphemic factors

Factor (1)

Insufficient knowledge of orthographic norm

The writer *may be supposed* to have had a defective ability to read and write implying *partial* ignorance as to what grapheme(s) normally corresponded to a given phoneme and consequently chose the grapheme(s) in question more or less *at random*. This choice *may* of course have had a phonetic cause, but the possibility of non-phonetic causes makes us mark (1).

Non-orthographic, i.e. impermissible (cf. above, p. 50) writings such as <Ω> corresponding to /i:/ might be products of *complete* ignorance and, being non-orthographic, have not been incorporated in the data.

All data from documents of *strictly private* character will be marked with factor (1). As strictly private documents are classed: vase inscriptions, ostraca, defixiones, pinakia, and school-tablets, and only these.

Data from *official* documents will naturally not be marked with factor (1). In this case the writer had a well checked manuscript, which he had to copy exactly. That is to say he had a reliable orthographic norm to follow.

We may safely presuppose that the persons who were entrusted with the task of cutting the official inscriptions had a good ability to read and write. The suspicion⁵⁵ that the stonemasons might

⁵⁵ Cf. Larf., pp. 121 f.

barely have been able to read the manuscript they copied is totally unfounded. The level of education in Athens at classical times was surely not so low that it was impossible to find competent people to produce the official documents. That an equally high degree of perfection was demanded in the official Attic language as in other jargons of that kind is to be seen from the extreme morphological, lexical, and syntactic formalization.

Consequently, we may take for granted that the writers of official documents had a *double basis of reference*, on the one hand in the orthographic norm of the checked manuscript, on the other in their own graphemic knowledge.

The writings of official documents, then, are products of the highest degree of knowledge then available of phonemic-graphemic relations, and so they constitute the extreme opposite of the non-orthographic writings not incorporated in the data. The instances of orthographic variants occurring in such documents, therefore, (if not marked with any other factor either and thus being fully valid) must—according to the description of the concept of fully valid instance (see above, p. 50)—have a *phonetic* cause of origin. (The origin as such implies certain psychological conditions such as tiredness, momentary inattention etc., disconnecting the intellectual phoneme-grapheme associations and so temporarily opening way for unconscious, phonetically caused spontaneous associations phoneme-grapheme.)

Factor (2)

Careless writing

By this is meant incomplete or otherwise ambiguous writing that causes *graphemic ambiguity*, so that one cannot know *with certainty*, what grapheme the writer intended by the graph.

Ex. 1: Orthographic norm: <I> corresponding to tentative /i:/.

The writer has written two vertical strokes II, which *may* be dittography of <I> but is probably an unfinished <H>.

Ex. 2: Orthographic norm: <I> corresponding to tentative /i/.

The writer has written MOYNTXIΩNOΣ. The fifth graph looks like a *tau* but is probably intended to be <Υ>.

If the writer intended a *tau*, the graph would be non-orthographic

and should be excluded, but the probability (considering the context) that he intended ⟨Υ⟩ makes us accept the graph as an instance of the orthographic variant ⟨Υ⟩. The graphemic ambiguity, then, is the reason why we should accept the graph, i.e. it makes the allographic variation orthographically relevant, and further it constitutes the basis for marking with factor (2).

There is one kind of allographic variation other than the special type just discussed above, that does *not* cause graphemic ambiguity and, consequently, prevents inclusion in the data, namely *free variation without orthographic relevance*. The following types can be discerned:

Grapheme	Allographs
a) ⟨Θ⟩	⟨Θ⟩, ⟨Φ⟩, ⟨Ο⟩ etc.
⟨Φ⟩	⟨Φ⟩, ⟨Θ⟩, ⟨Ο⟩ etc.
⟨Λ⟩	⟨Λ⟩, ⟨Α⟩, ⟨Δ⟩ etc.
⟨Α⟩	⟨Α⟩, ⟨Λ⟩, ⟨Δ⟩ etc.
⟨Μ⟩	⟨Μ⟩, ⟨Ν⟩ etc.
⟨Ν⟩	⟨Ν⟩, ⟨Μ⟩ etc.
b) ⟨Σ⟩	⟨Σ⟩, ⟨Ϛ⟩, ⟨ϛ⟩, ⟨Ϝ⟩, ⟨Ϟ⟩ etc.

a) A criterion of graphemic ambiguity is provided here by our knowledge of the future development of the corresponding phoneme (in this case down to Modern Greek).

Exs.: /t^h/ never develops into /o/, /a/ never develops into /d/, /l/ never develops into /a/ etc.

It cannot be doubted that the allographs listed under a) have originated only through the writer's carelessness, and there is no doubt as to which graphemes respectively they are members (free variants) of.

This also applies to the graphemes ⟨Μ⟩ and ⟨Ν⟩.

Ex. 1: ΠΟΛΕΝΟΣ. The ⟨Ν⟩ is an allograph in free variation of the grapheme ⟨Μ⟩ corresponding to the phoneme /m/ (the phoneme in this position is still /m/ in MG).

Ex. 2: ΠΟΛΙΜ#. The ⟨Μ⟩ is an allograph in free variation of the grapheme ⟨Ν⟩ corresponding to the phoneme /n/ /_# (the phoneme in this position is still /n/ in MG).

b) The different letter forms of *sigma* are allographs of the grapheme ⟨Σ⟩ and are in free variation. The variation is mainly due to alphabetic causes.

A special kind of careless writing to be marked (2) is haplography and ⟨Ø⟩ (zero) in the place of any graph.

Consequently, monographemic orthographic variants of graphemic sequences (digraphs)—corresponding to tentative (cf. above, Chapter 3) monophthongs, diphthongs, or consonantal sequences—are marked (2). A restriction to this rule is introduced in Vars. 1 (below, p. 75, n. 70) and 94 (p. 117, n. 77).

Exs.: ⟨Ι⟩ = ⟨ΕΙ⟩, ⟨Ι⟩ = ⟨ΑΙ⟩, ⟨Χ⟩ = ⟨ΧΣ⟩ etc.

Through carelessness the writer may have omitted one of the components of the graphemic sequence (a kind of haplography).

Factor (3)

Technical causes

Such causes—which, like careless writing (factor (2)), produce graphemic ambiguity—may be either

a) *primary*, e.g. defective quality of writing materials such as stone, ceramics, and writing implements, unskilful handling of implements, or

b) *secondary*, i.e. damage to writing material arisen after the characters had been applied to it.

To category b) are classed all data relying on early modern facsimiles of originals that are now mostly lost.

As *early* facsimiles are classed those *older than ca. 1860*.

Furthermore, all data from documents *not verified*⁵⁶ in editions by capital letters, facsimiles, commentaries, or photographs (i.e. documents published in minuscules only) and that have not been examined by me either in photographs or in the original are marked (3).

As was the case with factor (2), the criterion for marking with factor (3) is graphemic ambiguity, which is also the prerequisite for incorporating the instance into the data. Writings so defective that the graphemic identification is impossible are not included, and those where the grapheme in question can easily be identified are not marked (3).

⁵⁶ Cf. below, pp. 72 f.

Alphabetic causes

By this is meant confusion of the Old Attic and the Ionic alphabets in connection with the introduction of the latter.

All instances of Vars. 12—15, 22, 25, 95—99, and 101—102 are marked with factor (4) down to 350. Instances from documents of undetermined date, "4th c.", "4th/3rd c." etc., are also marked (4), because they may have been produced before 350.

All instances of Vars. 5—6, 92, and 94, which are dated 400—325 are marked (4), because the definite transition to the Ionic orthography <EI> and <OY> took place ca. 350. Instances dated "4th c.", "4th/3rd c." etc. are also marked (4).

B. Non-graphic/non-graphemic factors

Factor (5)

Interference from non-Attic dialects

The writer may be supposed to have been of non-Attic origin and/or the morpheme in question is of non-Attic origin.

With factor (5) are marked:

a) all data from *private* documents, in which non-Attic *proper nouns* are present, and

b) all data from non-Attic *lexical morphemes*.

As *private documents* are classed:

a) strictly private documents, i.e. those mentioned under factor (1), and

b) private sepulchral and private dedicatory inscriptions.

As *non-Attic proper nouns* are classed proper nouns not known to have been borne by any Athenian.

Mythological proper nouns of non-Attic origin and *hapax proper nouns*, if written in their Attic form and/or in forms not recorded in any Greek dialect, do not cause marking with (5).

Factor (6)

Lexical/morphological causes

These causes are not of non-Attic character (cf. factor (5)).

Two cases can be discerned:

a) Two (or more) morphs *may* be members, not of one and the same morpheme, but of *different* morphemes.

Ex.: Θάλεια : ΘΑΛΙΑ

b) The morph *cannot be identified* with certainty as belonging to a known morpheme.

Marking with factor (6) is made,

a) if our knowledge of the language is insufficient on the point involved, or

b) if defective writing or corruptions in the text have caused morphemic ambiguity, so that we do not know exactly what morpheme is meant.

Factor (7)

Syntactic and/or contextual causes

Two cases can be discerned:

a) The occurrence of an orthographic variant makes the morph appear to belong to a *grammatical morpheme other than the one to be expected* in the context, which *may* be due to the writer's misinterpreting the syntactic relations of the clause and/or be due to influence from the context. Exs.: ἐπισκευάσαι for ἐπισκευάσει, ἐπιμεληταῖς ταῖς φυλῆς for τῆς φυλῆς, σωτῆρε ΠΟΛΙΤΑΙ for πολίτα (dual.).

b) The same causes as in a) may produce orthographic variations where the morpheme appurtenance is not affected. Exs.: τὴν τήχνην, αἰπαρχέν.

Marking with factor (7) is done when an instance of an orthographic variant may be *supposed* to have arisen

a) through syntactic misinterpreting, for example confusion of constructions,

b) through influence from the context, causing *external graphic assimilation*, i.e. *between words*, especially affecting initial and final syllables.

The seven non-phonetic factors as defined above are those used in the present relational study. There may naturally exist some non-phonetic factor(s) not among those of this system. To provide to some extent against this possibility, hapax instances are not taken into consideration in the phonetic evaluation (Chapter 6), unless they can be grouped together with other variants.

All factors should be regarded as equivalent.

All markings with each factor should be regarded as equivalent.

These postulations are made for the sake of simplicity and—as regards the latter—to avoid any *ad hoc* treatment of instances. A detailed grading of factors and markings in regard to importance and a classification of the instances according to some scale would imply a very complicated procedure opening way to subjective decisions, and in general there are no statistical reasons for it. The total number of instances contained in the data is so great that the markings, if occasionally surplus or failing, will mostly equate each other. The way in which factor (1) works illustrates this.

All data from strictly private documents are marked (1) irrespective of their epigraphic qualities. Most of them are badly written, while in a few cases the quality of writing is rather good.

Data from documents other than strictly private ones are not marked (1), although there are a few examples of bad writing among them.

Factor (1)—like all the others—works mechanically according to the rules given to it.

This theory is motivated by the essential and imperative necessity to keep the individual subjective judgement of the investigator away from the instances themselves. Any *ad hoc* criticism of individual instances must always be more or less inconsistent, because one can never get exact knowledge of the causes of origin of a given instance, and thus it is likely to inspire unfounded presumptions.

It is obvious that the use of the above factor system cannot totally remove chance and subjectivity, but it is also apparent that it must contribute rather considerably to a less subjective treatment of the data, in that subjectivity is confined mainly to the procedure of writing marking rules for each factor.⁵⁷

⁵⁷ A subjective element is of course inevitable in the evaluation of the data,

It should be noticed that a prerequisite of the use of the factor system is that the amount of data is fairly large, which thus constitutes another reason for a complete account of the entire extant material.⁵⁸

As is the case with all statistical methods, there is a margin of error in our factor system. Its extent depends on the degree of adequateness of the rules, and may be reduced, if these can be modified so as to be better adapted to the material.⁵⁹ The margin of error as such does not constitute a great problem provided that the total number of instances is large enough. This is mostly the case in the present study, firstly because many orthographic variants each contain a large number of instances, secondly because many variants are combined and treated together in the evaluation of the data. Only in the variants treated separately and containing few instances will the significance of one falsely (in relation to reality) marked, or not marked, instance be too high. But since only very limited phonetic and phonemic conclusions can be drawn from such isolated and infrequent variants, the significance of sporadic false markings is reduced to a minimum in those variants too.

Context-Sensitive Factors of Orthographic Variation

Among the *phonetic* causes of origin of orthographic variation there is a special category constituted by *context-sensitive causes: assimilation, dissimilation, and metathesis*.

As these are limited to certain environments, no general phonemic conclusions can be drawn from them, and thus they should be treated separately. If, for example, ἡμῖς is repeatedly written ἡμῖςς, this is no evidence for a general phonetic change [y] > [i] (evidence from inverse spelling), but only for a change [i] [y] > [y] [y].⁶⁰

but as this procedure is based on data graded by the factors as to evidential value a systematic treatment is made possible, in which subjectivity is reduced as far as possible.

⁵⁸ Cf. above, p. 48.

⁵⁹ Evidently the factor rules must be considerably different in different investigations, depending on the nature of the data (epigraphic or manuscript documents, graphic characteristics etc.).

⁶⁰ *Principle 1* (p. 50) of course applies equally well to these limited phonetic

To make a separate treatment of such data easier, those instances which *may* have arisen from the causes in question are assigned special markings: (Ass), (Diss), and (Met). The principal basis for marking with these factors is the same as in the system of non-phonetic factors, namely *possibility*.

The markings (Ass), (Diss), and (Met) account, then,

- 1) for the *possibility* that the causes referred to are the sources of origin of the instance, and
- 2) for the *limitation* of the range of the phonetic changes in question.

As was the case with the non-phonetic factors, marking is done according to defined rules. Thus the following processes, described by Schwyz., *GG* I 255—269 and 317, Schmidt, pp. 321—394, Meisterhans, pp. 105—111, and Nachmanson, pp. 45—55 are accepted, and no others.⁶¹ All processes are between non-contiguous sounds.

1. Assimilations

Vowels

Regressive

The first component always has non-high pitch.

- 1) $\left\{ \begin{smallmatrix} [e] \\ [a] \end{smallmatrix} \right\} \left\{ \begin{smallmatrix} [o] \\ [ɔ:] \end{smallmatrix} \right\} > [o] \left\{ \begin{smallmatrix} [o] \\ [ɔ:] \end{smallmatrix} \right\}$
- 2) $[a] \left\{ \begin{smallmatrix} [e] \\ [ɛ:] \end{smallmatrix} \right\} > [e] \left\{ \begin{smallmatrix} [e] \\ [ɛ:] \end{smallmatrix} \right\}$
- 3) $\left\{ \begin{smallmatrix} [e] \\ [o] \end{smallmatrix} \right\} [a(:)] > [a] [a(:)]$

changes as to the general ones. Cf. Schmidt, p. 394: "Man muss ... Assimilationen auch dann anerkennen, wenn sie nur mit wenigen Fällen zu belegen sind".

Curiously enough it was only in the case of limited phonetic changes that this idea was generally accepted by early linguists, although it has the same bearing upon general changes.

⁶¹ Other processes mentioned in these works are non-Attic, non-productive, or only hypothetical; others are so frequent and/or well described in earlier works as to be excluded from the data. The latter is the case with e.g. the dissimilation $[l] [l] > [r] [l]$ (a variation $\langle P \rangle \sim \langle \Lambda \rangle$ is not among the data). Omissions of autographemes or syngraphemes are accounted for as separate orthographic variants (Vars. 113—114 and 180).

- 4) $\left\{ \begin{smallmatrix} [e] \\ [y] \end{smallmatrix} \right\} [i] > [i:] [i]$
- 5) $[i] [y] > [y] [y]$
- 6) $[a] [ai] > [ai] [ai]$
- 7) $[o] [oi] > [oi] [oi]$
- 8) $[e] [eu] > [eu] [eu]$

Progressive

- 1) $\left\{ \begin{smallmatrix} [o] \\ [ɔ:] \end{smallmatrix} \right\} \left\{ \begin{smallmatrix} [e] \\ [a] \end{smallmatrix} \right\} > \left\{ \begin{smallmatrix} [o] \\ [ɔ:] \end{smallmatrix} \right\} [o]$
- 2) $[a] \left\{ \begin{smallmatrix} [e] \\ [o] \end{smallmatrix} \right\} > [a] [a]$
- 3) $[e] [a] > [e] [e]$
- 4) $[i] [y] > [i] [i]$
- 5) $[y] [i] > [y] [y]$
- 6) $[e] [a] [e] > [e] [e] [e]$
- 7) $[o] [e] [o] > [o] [o] [o]$
- 8) $\left\{ \begin{smallmatrix} [ai] \\ [oi] \end{smallmatrix} \right\} [a] > \left\{ \begin{smallmatrix} [ai] \\ [oi] \end{smallmatrix} \right\} [ai]$
- 9) $\left\{ \begin{smallmatrix} [ai] \\ [oi] \end{smallmatrix} \right\} [o] > \left\{ \begin{smallmatrix} [ai] \\ [oi] \end{smallmatrix} \right\} [oi]$
- 10) $[eu] [e] > [eu] [eu]$ ⁶²

Consonants

Regressive

- 1) $[\text{Unaspir. stop}] [\text{Aspir. stop}] > [\text{Aspir. stop}] [\text{Aspir. stop}]$
- 2) $\left\{ \begin{smallmatrix} [n] \\ [s] \end{smallmatrix} \right\} [l] > [l] [l]$
- 3) $[k] [r] > [g] [r]$
- 4) $[m] [b] > [b] [b]$
- 5) $[n] [k] > [k] [k]$ ⁶³

⁶² Not mentioned by Nachmanson; inserted for analogical reasons.

⁶³ Not mentioned in the above works; included on analogical grounds.

Progressive

- 1) [Aspir. stop] [Unaspir. stop] > [Aspir. stop] [Aspir. stop]

2. *Dissimilations*

Vowels

- 1) [a] [a] > $\begin{bmatrix} [a] \\ [e] \end{bmatrix} \begin{bmatrix} [e] \\ [a] \end{bmatrix}$
- 2) [e] [e] > $\begin{bmatrix} [a] \\ [e] \end{bmatrix} \begin{bmatrix} [e] \\ [a] \end{bmatrix}$ ⁶³

Consonants

- [m] [n] > [b] [n]

3. *Metatheses*

Vowels

- 1) [y] [i] > [i] [y]
- 2) [i] [y] > [y] [i]
- 3) [e] [oi] > [o] [e:]⁶⁴

Consonants

1. [Voiced unaspir. stop] [Voiceless unaspir. stop] > [Voiceless unaspir. stop] [Voiced unaspir. stop].

⁶³ See p. 65.

⁶⁴ In 'Ορειάδης (Vars. 70 and 78). Not mentioned in the above works.

The Corpus

DEFINITION

The corpus is constituted by all available extant primary graphic documents in the Attic dialect produced in Attica from the introduction of writing down to 200 B.C.

1. The corpus should be so *extensive* because each instance of an orthographic variant may, if rare, according to *Principle 1* possess high evidential value and thus ought to be in the data. Furthermore, the documents are highly varied and heterogeneous in origin, date, quality, extent etc. and so make sampling very complicated.⁶⁵

Some excavated documents are not available, partly because some of them have as yet not been published, while others (above all vase inscriptions) published long ago in various periodicals and monographs have been impossible to trace.⁶⁶

2. Only *extant* instances are accepted, i.e. the graph must principally still be legible on the original or on copies made by modern scholars. Restorations are not accepted unless the reading is unambiguous and without relevance to the type of orthographic variation involved.

Exs.: ἐ[πεψήφισεν Καλλίστρ]ατος (*Hesp.* 11,287,56,6) is not accepted, although the reading may be said to be probable. There may, however, have existed some dittography in the obliterated text. But a case such as EI[Σ]ΦΗΝΑ[Σ] (*IG II²* 1672,10) is unambiguous, irrespective of the fact that we do not know if a *sigma* was written in the third space or not. As there is only one space for two *sigmas*, the example is accepted as an instance of the orthographic variation 178.

⁶⁵ After all the great number of extant documents can very well be considered a sort of sample out of the enormous amount of texts once existing (a great number of which surely still exists—underground).

⁶⁶ Because of the large number of orthographic variants examined, and since many inscriptions have been published without photographs or facsimiles, it is of course possible that occasional instances have been overlooked or cannot be discovered at all in the existing publications. This is very probably the case with Vars. 103, 105, and 175.

3. The documents under investigation ought to be *primary*, i.e. not copied after 200 B.C. If a copy was made before that year it will be accepted as primary with its own date, not that of the original.

4. The documents should have been written entirely in the Attic dialect. Documents showing evident non-Attic features are excluded as a whole.

5. The documents should have been written in the province of Attica. By the province of Attica is meant the entire peninsula from Sounion in the south to Oropos in the north (Oropos not being counted as belonging to Attica), and from Rhamnous in the east to Eleusis in the west. The island of Salamis is included, but no others. Inscriptions on stone must have been found within this area.⁶⁷

Inscriptions on material other than stone are accepted, if the article bearing the inscription is proved (archaeologically or otherwise) with certainty or most probably to have been produced in Attica.

6. The corpus comprises all written documents from the introduction of the alphabet down to the year 200. This is required in order to get a general view of the phonetic development during the times preceding and following the period investigated, which is essential for the chronological determination of the phonetic changes.

Operational Principles

LIMITATIONS TO THE COLLECTION OF DATA

1. The purpose of the collecting procedure is to bring about a collection of orthographic data (called so because this study is an orthographic relational study; cf. above, p. 22).

In the investigation the orthographic norm is taken as a starting-point. Then the infrequent orthographic variants are made the virtual subject of investigation.

Only infrequent orthographic variants are included. To be included in the data a variant should in principle not have a relative

frequency higher than about 10 % or—for a few morphemes—up to about 25 % as against the norm. It has already been stated above, (pp. 52—54) that, as we do not know the exact frequencies, decisions must be based on the best approximative information available, namely Meisterhans, *Grammatik der attischen Inschriften* (3rd ed. by Schwyzler 1900) checked by the reading of the documents.

That means practically that the texts were read in the light of the statements about infrequent orthographic variants given in Mhs, and if a variant showed a relative frequency definitely not higher than around 10 %, it was accepted. If there exist two or more such variants, these together must naturally not have a relative frequency higher than 10 %.

Non-orthographic writings (cf. above, p. 50) fall outside and are not counted in the absolute frequency.

The more frequent variants not included in the present study have been sufficiently well described in previous works, especially Mhs. That work should be consulted continuously by the reader. Detailed references are usually not given, since this seemed superfluous.

2. a) Some infrequent orthographic variants⁶⁸ and b) certain morphemes affected by infrequent orthographic variation that—according to the principles just presented—ought to be in the data, have been sufficiently well described and accounted for in earlier works, especially Mhs. Consequently, it seemed unnecessary to include them in the present study.

a) The following temporarily infrequent orthographic variants are excluded: <O> for normal <OY> (Mhs, pp. 26 f.), <E> for normal <EI> (Mhs, pp. 35 and 40—44), <ΣX> for <XΣ>, <ΣΦ> for <ΦΣ> (Mhs, p. 93), and <Ø> for OA <H> (Mhs, p. 85).

b) Individual morphemes (temporarily) affected by infrequent orthographic variation that are excluded are, among others, the following ones, but only when occurring in the following variations:

'Αθηναί- ~ 'Αθηνα-, ἐλαί- ~ ἐλα-, αἰεῖ ~ αἰεί, αἰετ- ~ αἰετ-, Πειραι- ~ Πειρα-, (Mhs, pp. 31 f.), ποι- ~ πο-, Λευκονοί- ~ Λευκονο-, (Mhs, p. 57), οὐδ- ~ οὐθ-, μηδ- ~ μηθ-, (Mhs, pp. 104 f.), and ζύν ~ σύν (Mhs, pp. 220 f.).

⁶⁸ The variants concerned with here are infrequent only during a part of the period comprised by the investigation.

⁶⁷ The rather numerous Attic inscriptions found outside Attica are not in the corpus owing to the possibility that they were produced by natives.

3. Instances from morphemes identical with special non-Attic forms are excluded, e.g. 'Αθηναίη, 'Αθαναία, δᾶμος, Θευγένης etc. Var. 103,2—5 form an exception.

RESTRICTIONS

1. Cases of clear or probable dittography, i.e. at the end of a line, are excluded.

2. The following types of omission are excluded:

a) Omissions clearly or probably due to abbreviation or haplography, most commonly at the end of a line.

b) Omissions comprising sequences of two or more graphs (such cases being classed as non-orthographic; cf. above, p. 50).

c) Space in the place of a graph elsewhere than at the end of a line.

ΑΘΗΝΑΙΑ | (dat.) and ΠΑΝΑΙΤΙΟ | (nom.) are accepted, but not ΑΘΗΝΑ ΑΝΕΘ ΚΕΝ. (In the latter case the prerequisite for acceptance is that the graphs must have been omitted without space: ΑΘΗΝΑΑΝΕΘΚΕΝ.)

d) Elisions and crases.

3. In the following variations only a part of the period otherwise covered in this investigation is comprised:

Variations 13 <H> ~ <E>, 22 <HI>/<EI> ~ <E>, 95 <Ω> ~ <O>, and 98 <ΩΙ> ~ <ΟΙ> comprise the period 403—200, because in the year 403 (cf. p. 32, n. 25) the two Ionic graphemes concerned are established as an orthographic norm. (There is no alternative spelling after that date, as was the case with <EI>/<E> and <OY>/<O>.)

Variations 164 <XΣ> ~ <X> and 176—177 <Θ> ~ <H> comprise the period down to 403, i.e. until the introduction of the Ionic alphabet.

Variation 178 <σσ> ~ <σ> comprises the period 425—200, because the practice of doubling syngraphemes that was gradually introduced from the beginning of the 5th c. was not established as an orthographic norm until about the middle of the century. To eliminate possible sporadic cases of conservative orthography, the starting-point of the period investigated is set in the year 425.

DATING

Inscriptions on vases not dated by the editor, but which are classified with regard to potter/painter, are dated according to *ABV*, *ARV*, *Richt. ARV*, and *Cook*. In general, the grouping of vase-painters into periods of 25 (or 30) years practised in *Richt. ARV* is followed. If possible a more exact date is given.

Dates of inscriptions on vases that cannot be identified with regard to potter/painter are indicated by "blackf." or "redf.". Inscriptions on vases lacking even that classification in the editions, and which cannot otherwise be identified, are dated "6th/5th c.".

The term "Attic-Cor. style" is represented by the date "600/575", "early panathenaic amphora" by "ca. 550", "severe red-figure" or "archaic red-figure" by "end 6th/begin. 5th c.".

Undated inscriptions published in *Graef* are dated either "6th/5th c." or "5th c.".

Undated defixiones published in *Def.* are dated "4th/3rd c."⁶⁹

Other undated inscriptions (mainly in *IG I²*) are dated on the basis of letter forms according to *Larf.*, p. 266 and *Roberts*, pp. 98—107. If there is no information as to letter forms, pre-Euclidean inscriptions are dated "before 403".

If in some types of inscriptions, especially tabulae (mainly published in *IG²*), no exact date is given in the publication, in the case where the document was produced for many years, the latest date of the document given in the publication is stated as the date of the instance. Only if the latest part of the inscription is clearly distinct from the earlier part(s), is this late date not stated as the date of an instance belonging to the earlier part.

A few inscriptions without information as to date, and which are certainly earlier than 200, so that they could be included in the data, have been approximately dated by me on different criteria, e.g. alternation <OY> ~ <O> etc.

Documents of uncertain date that *may* be later than 200 are excluded.

⁶⁹ For dating of defixiones cf. *Wilh.*, pp. 101 f. and 105—126, *Rab.*, p. 14, and *Peek*, p. 93.

The corpus is constituted by documents as defined above, published in the following works read

a) *in extenso*:

ABV, *ABV Paralip.*, *ARV*, (*ARV Paralip.*), *ATL* II, Audoll., Beaz., *Cypr.*, CC, Conze, *CVA* down to 1972, *Def.*, Gerh., *AV*, Graef, Hartw., *Hesp.* 1—40, *Hesp. Suppl.* 1—8, Hopp. *Bf.*, Hopp., *Rf.* I—II, *IG* I—II², Immerwahr, Jeff., KL, KM, Kr., Papadém., Peek, Pfuhl, Rab., Richt., *MM*, *SEG* 1—26, Wer., Wilh., Zie. I, and Zie. II.

b) *in selections*:

AJA, *Arch. Eph.*, *Ath. Mitt.*, *BCH*, *CIG*, *Delt.*, *IG* I—II¹, *IG* I³, Schwyz., *GGI*, *Syll.*, and Tod.

VERIFICATIONS

For each instance the source of verification is indicated in the far right-hand column. The abbreviations refer to the following sources of verification:

Inscr. exam.	Inscription examined in the original, on which the instance was verified.
Spec. ph.	Special photograph of the inscription acquired, on which the instance was verified.
Ph.	Inscription published with a photograph, on which the instance is legible.
FS	Inscription published with a facsimile, on which the instance is verified.
Comm.	Inscription published with a commentary or note clearly indicating the graphic character of the instance.
CL	Inscription published with a transcription in (mostly normalized) capital letters, by which the graphic character of the instance is only roughly indicated.

All these sources of verification can be said to be reliable except the last one (CL), whose reliability is only partial.

If the instance is not verified by any of the sources mentioned, i.e. if it was published in minuscules only and if it was not examined by me in the original or in a photograph, it is marked with factor (3) (cf. above, p. 59).

Notes about the verification of instances are not given, unless there are special reasons for doing so. For example, "ἐπιδῆ Inscr. exam." means that the graph <I> has been verified by examination to be an *iota* and no other grapheme (as written exactly between the adjacent graphs). In "Ἀθελίων CL" we do not know the exact graphic character of the epsilon, since the reading is verified in the publication only by capital letters, but this is not to be discussed in a note.

CONVENTIONS

1. In the first column the instances are given with their context, i.e. the graphic word that the instance belongs to, and—if necessary for the study—the adjacent graphic words.

The epigraphic data have been transcribed and accentuated according to current practice except for some instances where it has been considered convenient to use capitals, in order to show more clearly what the inscription looks like.

The *iota* is adscriptum throughout. The text is given in corrected form according to the Leyden notational system, as far as this is required for intelligibility. By printing a letter above the line it is indicated that that letter was added by the writer.

2. In the second column non-phonetic and context-sensitive phonetic factors are notated by their numbers or notational symbols: (1)(5)(Ass) etc.

3. In the third column the publication is quoted. For typographic reasons the main principle of quotation has been economy. For example, the fascicules of *CVA* are quoted by the national symbol and the number of the fascicule only: F 8 = France 8, E 1 = Spain 1 etc., not by museum names, and the subdivisions III Hd, III Ic etc. are used only if necessary, i.e. if the plates of the fascicule are not numbered consecutively.

Standard publications, e.g. *IG*, *SEG*, *CVA*, *ABV*, *ARV* etc., are usually quoted in the first place; only in some cases are periodicals and minor publications quoted. This implies that dates and verifications are sometimes not found in the publication quoted but are only referred to there. All dates and verifications have of course been examined in the primary publication.

Publications are generally quoted by page and inscription number. The following sources are quoted by number only: *CIG*, Conze, *CVA*, *Def.*, Gerh., *AV*, Graef, Hartw., *IG I—II¹*, *IG I—II²*, Pfuhl, *SEG*, *Syll.*, and Zie. I—II.

4. In the fourth column the date of the instance is stated.

Obliques (not hyphens) are used throughout in dates: 329/8, 600/550 etc.

If the date of a (redated) inscription derives from a publication other than that quoted, that source is referred to within parentheses after the date.

5. In the fifth column the source of verification of the instance is stated. If that source is not found nor referred to in the publication quoted, the other publication is mentioned within parentheses after the verification symbol.

The tentative phonemic correspondences of the grapheme(s) of the orthographic norm are given in the heading of the variation, if the grapheme(s) in question may correspond to more than one tentative phoneme. The phonemes referred to are those of the tentative phoneme inventory of the period 500—440 presented above, pp. 36 f.

In a few morphemes the exact correspondence is uncertain or it may change during the long period comprised by the investigation. Such circumstances cannot, however, be accounted for and, as only few morphemes are concerned, lack significance in the present study.

Orthographic data

1. Norm: <E>/<EI> corresponding to tentative /e:/.⁷⁰
Var.: <I>.

1. Πισ<τ>ρατος	(1)(2) (Ass)	<i>Hesp. Suppl.</i> 8,405	7th c./ca. 550 (p. 407)	Ph.
2. 'Α<μ>ινλας	(1)(2)(6) (Ass)	Graef II 1324	begin 6th c.	FS
3. Κλι<τ>ας	(1)(5) (Ass)	Hopp., <i>Rf.</i> 150,2 B	ca. 570 (Cook, p. 73)	Ph.
4. Κλιτομένες	(1)	<i>ABV</i> 167	550/25	Ph. (<i>AJA</i> 30,432)
5. Κλιταρχος	(1)	<i>ABV</i> 174,1	550/25	Spec. ph.
6. Ταλ[δε<ς>]	(1)(2)	<i>ABV Paralip.</i> 73	550/25	Ph.
7. Σακονιδει δοκίς	(1)(2)	<i>ABV Paralip.</i> 72	550/25	Comm.
8. 'Επέλιος	(1)(2)(5)	<i>ARV</i> 146,2	530/00	Spec. ph.
9. Κλινλας	(1) (Ass)	Hopp., <i>Rf.</i> I 29,15	530/00	CL
10. Θάλια	(1)(2)(6)	Kr. 130, n. 4	530/00	CL
11. Πατρόκλια	(1)(2)(5)	<i>CVA</i> D 3, pl. 45,2	ca. 510	Ph. (pl. 46,2)
12. Θάλια	(1)(2)(6)	<i>CVA</i> D 21, pl. 56,4,9—10	ca. 510	CL
13. τρίς χοίνοι[κε<ς>]		<i>Hesp.</i> 17,95, c 14	ca. 510/480 (p. 86)	Ph.
14. τρίς χο[ίνοι]κε<ς>	(3)	<i>Hesp.</i> 17,97, h 7	ca. 510/480 (p. 86)	FS
15. Ιναι	(1)	<i>ARV</i> 18,1	end 6th c.	Spec. ph.
16. Χσίνις	(1) (Ass)	Hopp., <i>Rf.</i> I 406,16	end 6th c.	Comm. (FR, p. 7)
17. Κλβολος	(1)(3)	Hopp., <i>Rf.</i> I 427,58	end 6th c.	FS
18. Χλσοφος	(1)(3)	Hopp., <i>Rf.</i> I 427,58	end 6th c.	FS
19. ηποκ(μ)ενος	(1)(2)(6)	<i>ABV</i> 668	blackf.	Spec. ph.

1. Eighth-century geometric sherd.

2. Ostrakon from a vase of the period 600—550. The inscription contains a *koppa*, but also a *theta* of the form Θ. Date according to Roberts, pp. 106 f. and Larf., p. 266.

Marked (6), because the *mu* is written like a *nu* or a *heta*.

3. Not marked (6); cf. Richt., p. 21 and Kr., p. 135.

17–18. The inscriptions have been covered through careless restoration and are not visible any more; marked (3).

18. = Κλείσοφος.

⁷⁰ Instances corresponding to original diphthong are marked (2) throughout. Instances corresponding to "spurious" diphthong are marked (2) from 350 on.

20. καλός I	(1)(2)	CVA F 2, III Ic, end 6th/begin. 5th c.	Spec. ph.
21. ἐρα[σ]θίς	(2)	IG I ² 920, A 2 6th/5th c. (SEG 15,54)	Inscr. exam.
22. συνμείσχι[ν]	(3)	IG I ² 920, A 2 6th/5th c. (SEG 15,54)	Inscr. exam.
23. Ἀμινίο	(2)(3) (Ass)	IG I ² 979,1 begin. 5th c. (SEG 15,57)	CL
24. Εὐχέροι	(1)(2)	ARV 306 500/475	CL
25. φιλῶν	(1)	IG I ² 924,3 ca. 500/450	CL
26. ἰς πόλιν		IG I ² 658,4 490/80 (SEG 15,44)	Inscr. exam.
27. ἰς Γαργετίον	(1)	Peek 71,120,1 480 (Hesp. 24,288, n. 13)	Ph.
28. [Κ]λινίο	(1) (Ass)	Hesp. 21,1,1 460 (p. 7)	Ph.
29. Κλινίο	(1) (Ass)	Hesp. 21,2,2 460 (p. 7)	Ph.
30. [Κ]λινί[ο]	(1) (Ass)	Hesp. 21,2,4 460 (p. 7)	Ph.
31. Κλινί[ο]	(1) (Ass)	Hesp. 21,3,5 460 (p. 7)	Ph.
32. [Κλ]ινίο	(1) (Ass)	Hesp. 21,3,6 460 (p. 7)	Ph.
33. ἀποκτίνε[ι]	(3)	ATL II 10,29 453/2	CL
34. Κλειταγόρα	(1)	ARV 1591 redf.	CL
35. ἰ καλός	(1)(2)	CVA GB 8, III Ic, pl. 86,2 ca. 450/40	Spec. ph.
36. Κλινίας	(1) (Ass)	ARV 988,13 450/20	CL
37. Κλινίας	(1) (Ass)	ARV 1002,4 450/20	Spec. ph.
38. Κλειπίδες	(1)(2) (Ass)	Ath. Mitt. 40,12,21 443 (Peek 84,160)	Ph.
39. ΚΛΙΠΝΗ	(1)(2)(6) (Ass)	Graef II 1327 443? (Peek 84,160)	CL
40. ΝΙΑΙΘΥΑ	(1)(2)	CVA D 22, pl. 116,3—5 after 430	FS
41. Θάλια	(1)(2)(6)	CVA USA 2, pl. 23,1 a—c end 5th c.	CL
42. Ἀφιδας	(1)(2)	Wer. 60 end 5th c.	Spec. ph.
43. Θάλια	(1)(2)(6)	Hopp., Rf. II 187,26 end 5th c.	CL
44. Μιδείου	(1)(2)	CIG 542a end 5th c.	Comm. (Pap. dém., p. 82)
45. Ἀθηνογί[τ]ων	(2)(3)	IG II ² 10, B 12 401/0	Inscr. exam.
46. φέρειν ἰς τόν	(1)	Wilh. 95,1 end 5th/begin. 4th c. (p. 102)	Ph.
47. Λοχία	(2)(6)	IG II ² 4547,4 just after 400	Ph.
48. ὁπόσοι ἰσίν	(1)	Peek 93,4,5 begin. 4th c.	Ph.
49. [κα]τα[β]άλλ[ε]ν ἰς	(3)	Syll. 144,32 begin. 4th c.	—
50. ὀρίχα[λ]κ[ος]	(2)(3)	IG II ² 1416,1 after 385/4	CL
51. Ποσιδίππο	(2) (Ass)	IG II ² 11017,2 before 350	Inscr. exam.
52. Στιριῶς	(2) (Ass)	IG II ² 7469,2 ca. 350	Inscr. exam.
53. συνείκιν	(1)	Peek 88,168,4 after 350	Ph.
54. [Ἀ]ριστίδου	(2)	IG II ² 5, 563b,14 334/3 (IG II ² 1156)	CL
55. στρατίας	(2)(6)	IG II ² 351,31 330/29	CL
56. ταῦτα ἰς	(1)(2)(5)	Def. 103,a 2 323/2 (Wilh., pp. 122—125)	CL
57. Πολυκλίδης	(1)(2)(3)	Zie. II 1,A 76 ca. 323	—
58. συμφέρειν	(2)	IG II ² 558,35 ca. 303/2	Inscr. exam.
59. ὀλίζωσιν	(2)	SEG 21,346,34 4th c.	Ph.
60. Διοκλῆ	(1)(2)	Def. 94,18 4th c.? (Wilh., p. 110)	CL
61. τὸ καπηλίων	(1)(2)(5)(6)	Def. 70,2 4th/3rd c.	Comm.
62. τὸ καπηλίων	(1)(2)(5)(6)	Def. 70,3 4th/3rd c.	Comm.
63. Φιδίας	(1)(2) (Ass)	Def. 29,4 4th/3rd c.	FS
64. Φιδίου	(1)(2) (Ass)	Def. 29,11 4th/3rd c.	FS
65. χίρα	(1)(2)	Def. 54,a 1 4th/3rd c.	CL
66. χίρα[ς]	(1)(2)(6)	Def. 118,4 4th/3rd c.	CL
67. Ἐπικράτια	(2)	IG II ² 1534,81 291/0 (SEG 16,118)	CL
68. ἐλλείπει	(2)	IG II ² 1534,97 291/0 (SEG 16,118)	CL
69. Ἐπαμίνον{δ}ος	(2)(3)(6)	IG II ¹ 329,29 256/5 (SEG 21,377)	CL
70. Δινίου	(2)(3) (Ass)	IG II ¹ 329,40 256/5 (SEG 21,377)	CL
71. ἀίσιτ<ο>ι	(2)(3) (Ass)	IG II ¹ 329,41 256/5 (SEG 21,377)	CL
72. ἄπιμι	(2)(5) (Ass)	IG II ² 12141,7 ca. 250	Inscr. exam.
73. χιρίδια	(2) (Ass)	IG II ² 1534,269 247/6 (SEG 16,118)	CL
74. [Ἰ]θυγιτονίδης	(2)	IG II ² 848,b 13 222/1 (SEG 21,402)	Inscr. exam.
75. ἐπιδή	(2)	SEG 17,36,1 217/6	Inscr. exam.
76. Τισικλέους	(2)(5) (Ass)	IG II ² 9225,2 3rd c.	Inscr. exam.
77. Ἐπιρῶτις	(2)(5)	IG II ² 8536,2 3rd c.	CL

20. Cf. pl. 15 καλός εἰ, and pl. 20 καλός ΕΓ.
23. AMEINIO CIG and IG¹; hence marked (3).
35. Not marked (6); cf. ARV 314,2 εἰ καλός.
39. = Κλειπίδης?

2. Norm: <I> corresponding to tentative /i:/.
Var.: <E>/<EI>.⁷¹

1. 'ΗΦλειθουα	(1)(2)(5)	Kr. 157	575/50	
2. [X]είρον	(1)	ABV 59,14	575/50	Spec. ph.
3. Νέκαυλος	(1)	ABV 79/80	575/50	Ph.
4. Δυ<σ>νεικέτ<ο>υ	(1)(6)	CVA GB 1, III	ca. 550	Spec. ph.
		He, pl. 6,2 a—b		CL
5. Φοίνεις	(1)(3)	Hopp., Rf. I	end 6th c.	FS
		427,58		
6. Χέρων	(1)	CVA PO 1, pl.	500/475	Ph.
		12,3 a—b		
7. 'Αρχένος	(1)(6)	Hesp. Suppl.	490/80	FS
		8,395,3,1		
8. [Κα]μερῆς	(5)	ATL II 3,IV 12	452/1	CL
9. Σικινῆται	(5)	ATL II A 9,I 90	425/4	CL
10. Μελέσιοι	(5)	IG I ² 64,11	421 (SEG 10,90)	CL
11. Καμερῆς	(5)	ATL II 40,I 10	415/4	CL
12. Σταγειρίται	(3)(5)	ATL II A 13,IV	410/09	CL
		fr. 25		
13. Νει<χ>ανδρέως	(6)	SEG 18,112,1	begin. 4th c.	CL
14. 'Ελευσείνιος		IG II ² 6053,3	ca. 350	Inscr. exam.
15. Μειλησί[α]	(3)(5)	IG II ² 9825,3	after 317/6	—
16. [Φ]ύλοτε[ίμ]ω[ς]		Ath. Mitt.	313	CL
		21,303,8,4		
17. Εισίδωτος	(3)(5)	SEG 2,24,5	4th c.	—
18. Εδυθείαι		IG II ² 4669,9	4th/3rd c.	Inscr. exam.
19. 'Αριστονείκη		IG II ¹ 1402,3	begin. 3rd c.	CL
			(Papadém., p. 82)	
20. Νείκωνος	(3)	IG II ¹ 329,30	256/5 (SEG	CL
			21,377)	
21. Νεκαρέτης		IG II ¹ 836,B d	232/1 (IG II ²	CL
		12	1534)	
22. Βερνεικίδην	(5)	SEG 17,29,47	203/2	Ph.
23. Βερνε[ικίδην]	(5)	SEG 17,29,48	203/2	Ph.
24. Βηρεισάδου	(5)	IG II ² 9223,2	3rd c.	CL

1 and 18. The norm is represented by 10 instances. There is no other variant than <E> F = E; nevertheless marked (2).

5. The inscription has been covered through careless restoration and is not visible; hence marked (3).

7. = 'Αρχῖνος? ed.; marked (6).

13. Marked (6); cf. IG II¹ 7864.

21. E was corrected into I by the writer.

⁷¹ Instance No. 21 is included here although after ca. 350 the variant is <EI>, not <E>/<EI>.

3. Norm: <I> corresponding to tentative /i/.
Var.: <E>/<EI>.⁷²

1. Εἰόλεος	(1)	CVA GB 8,	530/00	Spec. ph.
		IIIHe, pls.		
		74/5,2		
2. 'Υφσεπύλε	(1)	Hopp., Rf. I	end 6th c.	CL
		406,16		
3. 'Αρίσ[τι]π[ι]ος	(1)(2)(6)	Hesp. Suppl.	begin. 5th c.	CL
		8,396,4,1		
4. Τερσειγόρης	(1)(5)	Kr. 182	475/50	Spec. ph.
5. τρεάκοντα	(3)	ATL II D 10,11	453/2	CL
6. 'Ε]πένικος	(1)	CVA DK 8, pl.	ca. 425	CL
		347,1 a—c		
7. 'Ελέρα	(1)	CVA GB 8, III	end 5th c.	Comm. (Kr., p. 208)
		Ic, pl. 91,1 a—d		
8. 'Ελέρα	(1)	CVA GB 8, III	end 5th c.	Comm. (Kr., p. 208)
		Ic, pl. 91,1 a—d		
9. Μιδείου	(1)	CIG 542a	end 5th c.	Comm. (Papadém., p. 82)
10. Κηφισεείως	(5)	IG II ² 6417,1	390/65	CL
11. [Πύ]θειος		IG II ² 37,23	after 383	CL
12. θαλ[αμ]έα[ς]		IG II ² 1608,59	373/2	CL
13. Φιλεία		IG II ² 12897/8	365/40	CL
14. <Β>ο<σ>φαγέα		IG II ² 1590a,5	before 350	CL
15. Φιλεία		IG II ² 7434,1	before 350	CL
16. Φιλεία		IG II ² 6748,1	ca. 350	CL
17. Τείτθη		IG II ² 12814	ca. 350	Inscr. exam.
18. Φιλεία		IG II ² 12896	ca. 350	CL
19. Ποσειδε[ώνος]		Hesp. 9,327,36,4	335/4	Ph.
20. Μελετέως		SEG 24,159,344	326/5	Ph.
21. Κορίνδειον	(1)(5)	Def. 73,2	4th c.? (Wilh., p. 112)	CL
22. 'Αρτεμείν	(1)	Def. 69,3	4th/3rd c.	CL
23. γεινέσθαι	(1)(6)	Zie. I 14,6	4th/3rd c.	CL
24. Πεισίδης	(3)(5)	IG II ² 10080,3	after 300	CL
25. Εύξεθίου	(3)	IG II ¹ 329,28	256/5 (SEG	CL
			21,377)	
26. γεινόμενον	(6)	IG II ² 786,7	just after 229/8	CL

1. Kr. (pp. 96 f.) tries to explain the *epsilon* as written for Boeot. *F*. But there are no Attic examples of this; hence not marked (2).

3. = 'Αρίστιππος?

4. = Τερψιχόρης.

23 and 26. May be aor.; hence marked (6).

⁷² Instances Nos. 20, 25, and 30 are included here although after ca. 350 the variant is <EI>, not <E>/<EI>.

27. Εὐμαρ[[ε]]ιδας	(5)	IG II ² 844,4	ca. 217/6	Comm. Comm. Ph. Ph. Inscr. exam.
28. Εὐμαρ[[ε]]ιδαν	(5)	IG II ² 844,23	ca. 217/6	
29. Ἀντ[ι]γενειδ[δ]ου	(6)	SEG 17,36,2	217/6	
30. Πειθέας	(6)	SEG 19,153,12	end 3rd c.	
31. Μνησείδης	(6)	IG II ² 1309,a 1	ca. end 3rd c.	
32. Νείνου	(3)(5)	SEG 21,977,1	3rd c.	

4. Norm: <E> corresponding to tentative /e/.

Var.: <I>.

1. Ἴρις	(1)	CVA F 9, III	550/25	Spec. ph.
		He, pl. 71,4,6,9		
2. Κινία<ς>	(1)	CVA E 1, III	550/00	FS
		He, pl. 8,2		
3. Νίσορ	(1)(5)	Hopp., Rf. I 28,6	530/00	CL
4. Μίμμων	(1)	Hopp., Rf. I	530/00	Ph.
		186,3		
5. χαίρετι	(1)	CVA F 8, III Ic,	end 6th c.	CL
		pl. 29,1—4,6		
6. Νί[σ]ορ	(1)	Hopp., Rf. I	500/475	CL
		277,44		
7. Κλιό	(1)(3)	Wer. 7,3	redf.	CL
8. Κεδριᾶται	(5)	ATL II 13,IV 5	442/1	CL
9. ἱταῖροι		IG I ² 1037,2	before 430 (IG I ¹ s., p. 114,491 ⁸)	CL
10. διαφέρονται		ATL II D 3,26	430/29	Ph.
11. Τελικρά[τες]		IG I ² 949,60	423 (SEG 25,57)	CL
12. ἴχει		IG I ² 828,4	end 5th c. (SEG 15,51)	CL
13. Ἀρρινηίδο		IG II ² 1742,92	just before 400 (SEG 23,88)	CL
14. Περικλῆς	(6)	IG II ² 12447/8	ca. 400	Inscr. exam.
15. Ἰστιαία	(Ass)	IG II ² 11749	begin. 4th c.	CL
16. Ὀφιλίων[ος]	(1)(5) (Ass)	Def. 70,1	begin. 4th c. (Zie. I p. 118)	Comm.
17. Ὀφιλίωνα	(1)(5) (Ass)	Def. 70,1	begin. 4th c. (Zie. I p. 118)	Comm.
18. Ὀφιλίων	(1)(5) (Ass)	Def. 71,1	begin. 4th c. (Zie. I p. 118)	Comm.
19. Ὀφι<λ>ίμη	(1)(5) (Ass)	Def. 71,1	begin. 4th c. (Zie. I p. 118)	Comm.
20. Ὀφιλίωνος	(1)(5) (Ass)	Def. 71,2	begin. 4th c. (Zie. I p. 118)	Comm.
21. Ὀφιλίωνα	(1)(5) (Ass)	Zie. I 18,1	begin. 4th c. (p. 118)	Comm.

14. May be = Περικλῆς; hence marked (6).

22. Ὀφιλίμη<ν>	(1)(5) (Ass)	Zie. I 18,2	begin. 4th c. (p. 118)	Comm.
23. Ἡγιστράτη		IG II ² 11569a	390/65	CL
24. Νικαρίτης		IG II ² 13000,2	365/40	CL
25. Ἰργῖνος	(Ass)	IG II ² 6876,1	ca. 360/50	Inscr. exam.
26. Ἰργον		IG II ² 1613,99	353/2	CL
27/8. Ἰνθάδι	(5)	IG II ² 9112,1	before 350	Inscr. exam.
29. Ἀ[ρ]ιθο[ύ]σιοι	(3)	IG II ² 1437,18	ca. 350	Inscr. exam.
30. Ἀνδρία	(1)(2)	IG II ² 7328a,2	ca. 350	—
31. ἐὰν δὲ μή, ἰξ[εῖναι]		Peek 88,168,9	after 350	Ph.
32. ἱμοῦ		IG II ² 1183,9	after 340	Inscr. exam.
33. μελίνας		IG II ² 1672,155	329/8	CL
34. οἱ ἰστιά[τορ]ες	(Ass)	IG II ² 1259,1	313/2	Inscr. exam.
35. Διοκλῆος	(1)	Def. 94,5	4th c.? (Wilh., p. 110)	CL
36. ἀνί<θ>εσαν		SEG 21,790,4	4th/3rd c.	Inscr. exam.
37. ἀριτῆς		IG II ² 4658,2	4th/3rd c.	Inscr. exam.
38. φιρόμ[ε]να	(1)	Def. 158,2	4th/3rd c.	CL
39. Δη[μ]ίαν	(1)	Zie. II 3,1	4th/3rd c.	Comm.
40. ἱκείνου	(1)(5)	Zie. II 6,a 4	4th/3rd c.	CL
41. Ἰστιαιόθεν	(Ass)	SEG 22,128,34	240/35	Ph.

30. Cf. line 1 -είας and line 2 -έας.

5. Norm: <E> corresponding to tentative /e//_C/.⁷³

Var.: <EI>.

1. Μέιμων	(1)	Kr. 136,116	500/475	Spec. ph.
2. εἰτῶν	(3)	ATL II D 10,12	453/2	CL
3. εἰστεκότα		IG I ² 374,179	408/6	CL
4. τὸ ἔργον — ὑγίεις	(4)	IG II ² 1678,a 12	ca. 350 (SEG 13,49)	CL
5. (τὸ ἔργον) — ὑγίεις	(4)	IG II ² 1678,a 13	ca. 350 (SEG 13,49)	CL
6. ὁμολόγησεν	(4)	IG II ² 1629,505	ca. 325/4	CL
7. γεινέσθαι	(1)(4)(6)	Zie. I 14,6	4th/3rd c.	CL
8. γεινόμενον	(6)	IG II ² 786,7	just after 229/8	CL

7-8. May be pres.; hence marked (6).

⁷³ Instances dated 400—325 are marked (4); cf. above, p. 60.

1. Φρειάριος	(1)	Delt. 23:2:1, pl. 19a	487/6 (p. 28)	Ph.
2. μάντειον	(5)	IG I ² 503,2	before 480	Comm.
3. Λαμπτρέϊως		IG I ² 1063,2	ca. 450 (IG I ¹ s., p. 117,491 ³⁵)	CL
4. Φιλοκλείος		IG II ² 11980,2	end 5th c.	Comm.
5. Κλειοκράτεια	(4)	IG II ² 6124,1	begin. 4th c.	CL
6. ἐκ Κεραιμείων	(4)	IG II ² 6341	begin. 4th c.	CL
7. Λειωγόρο	(3)(4)	IG II ² 1138,22	390/80 (SEG 16,105)	CL
8. Κηφισεΐως	(4)(5)	IG II ² 6417,1	390/65	CL
9. Ἀγρυλειῆς	(4)	Hesp. 11,231,43,28	367/6	Ph.
10. Κη[φ]ισιέϊως	(4)	IG II ² 6421,3	365/40	Comm.
11. τῶν δὲ ἱερέϊων	(4)	SEG 21,527,31	363/2	Ph.
12. Εἰπειᾶτος	(4)	IG II ² 5999,1	before 350	CL
13. Εἰπειᾶτος	(4)	IG II ² 5999,3	before 350	CL
14. Ἱεροκλείος	(3)(4)	IG II ² 7614,2	before 350	CL
15. Θεϊόκριτος	(4)	IG II ² 11645	before 350	CL
16. Λυσικλείους	(4)	IG II ² 2385,100	ca. 350	CL
17. Θειοφάντη	(4)	IG II ² 5678,3	ca. 350	CL
18. Ἀλαιέϊως	(4)	IG II ² 5733,6	ca. 350	CL
19. Χαρικλείους	(4)	IG II ² 6261,1	ca. 350	CL
20. Μελιτέϊως	(4)	IG II ² 6834,2	ca. 350	CL
21. Διοκλείους	(4)	IG II ² 6932,1	ca. 350	CL
22. Σουνίει(ω)ς	(4)	IG II ² 7434,3	ca. 350	CL
23. Ἀρχικλείους	(4)	IG II ² 7836,1	ca. 350	Inscr. exam.
24. Πλαταιέϊως	(4)(5)	IG II ² 10090,2	ca. 350	CL
25. Εὐκλείους	(3)(4)	IG II ² 12292,2	ca. 350	CL
26. Παντακλείω[ν]	(4)	IG II ² 12400,1	ca. 350	CL
27. Θειοφίλη	(4)	IG II ² 12504,2	ca. 350	CL
28. Ἀνδρέϊου	(3)(4)	IG II ² 7328a,2	ca. 350	CL
29. Ἀριστοκλείους	(4)	SEG 25,256,1	ca. 350	Ph.
30. Ἀντικλείους	(3)(4)	IG II ² 1927,16	after 350	CL
31. Πασικλείου	(3)(4)	IG II ² 2401,13	after 350	CL
32. κ]λείους	(4)	IG II ² 5854,2	after 350	CL
33. Περγασέϊως	(4)	IG II ² 6972,2	after 350	CL
34. Θεϊόφιλος	(4)	IG II ² 11667,1	after 350	CL
35. ἐν Ζείαι	(4)	IG II ² 1668,3	after 347/6	CL
36. ἐαυτό[ν]	(4)	IG II ² 222,14	ca. 344/3	CL
37. ρέϊουσα	(4)	IG II ² 1444,22	ca. 344/3	CL

22. EIAS stone.

38. Δημοκλείος	(4)	IG II ² 1749,56	341/0	CL
39. Μνησιθέϊου	(4)	IG II ² 1749,65	341/0	CL
40. Θεϊόφραστος	(1)(4)	CVA USA 1, III Hf, pl. 6,1—2	340/39	CL
41. ἀξιοχρέϊωι	(4)	IG II ² 1183,28	after 340	CL
42. Ἀγαθοκλείους	(4)	IG II ² 8550,2	after 340	CL
43. ἱερέι[ως]	(4)	IG II ² 1533,18	338/7	CL
44.]οκλείους	(4)	IG II ² 2491,5	335/25 (SEG 23,94)	CL
45. ἱδρύσειως	(4)	IG II ² 337,10	333/2	CL
46. Κιτιέϊων	(4)(5)	IG II ² 337,21	333/2	CL
47. ἱδρύσειως	(4)	IG II ² 337,21	333/2	CL
48. Ἀριστοκλείους	(4)	IG II ² 1623,5	333/2	CL
49. Εὐκλεία	(4)	IG II ² 2976,13	333/2 (SEG 21,682)	Ph.
50. Φαληρέϊα	(4)	IG II ² 410,19	ca. 330	CL
51. γειωρ(γόν)	(4)	IG II ² 1566,22	ca. 330	CL
52. [Ἀχα]ρνεία	(4)	IG II ² 1576,11	ca. 330	CL
53. Ἀχαρνεία	(4)	IG II ² 1576,48	ca. 330	CL
54. Ἀχαρνεία	(4)	IG II ² 1576,64	ca. 330	CL
55. Αὐτοκλεία	(4)	IG II ² 1576,71	ca. 330	CL
56. Πιθέϊα	(4)	IG II ² 1576,72	ca. 330	CL
57. ἀναγραφείας	(4)	IG II ² 1670,22	ca. 330	FS
58. γει[ω](ργός)	(4)	IG II ² 1557,19	ca. 330/10 (SEG 18,36)	CL
59. θειοῖν	(4)	IG II ² 1672,2	329/8	CL
60. Λειωντ[ιδ]ος	(4)	IG II ² 1672,7	329/8	CL
61. θει{ν}οῖν	(4)	IG II ² 1672,138	329/8	CL
62. θει{ν}οῖν	(4)	IG II ² 1672,141	329/8	CL
63. νειωκορίου	(4)	IG II ² 1672,164	329/8	CL
64. Σοφοκλείους	(4)	IG II ² 1672,191	329/8	CL
65. προσειωνήθησαν	(4)	IG II ² 1672,209	329/8	CL
66. Μοιροκλείους	(4)	IG II ² 1672,210	329/8	CL
67. θειοῖν	(4)	IG II ² 1672,213	329/8	CL
68. ἱερέϊων	(4)	IG II ² 1672,290	329/8	CL
69. ἱερέϊως	(4)	IG II ² 354,2	328/7	CL
70. κατειαγόντων	(4)	IG II ² 1673,55	327/6	CL
71. Ἀντι]κλείους	(4)	IG II ² 361,1	325/4	CL
72. Δεισιθέϊου	(1)(4)	Def. 55,a 7	prob. 325/4 (Wilh., pp. 107 f.)	CL
73. Ἀντικλείους		IG II ² 1203,3	324/3	CL
74. Ἀντικλείους		IG II ² 1203,8	324/3	CL
75. Κινείαν	(1)(5)	Def. 103,a 6	323/2 (Wilh., pp. 102 and 124)	CL
76. βασιλεία		IG II ² 495,15	303/2	CL
77. γ[ρ]αμματεία		IG II ² 530,3	end 4th c.	CL
78. Τιμόθειος	(4)	IG II ² 5279,1	4th c.	CL
79. Πεισικλείους	(4)	IG II ² 5655,2	4th c.	Comm.

80. 'Ατηνείως	(3)(4)	IG II ² 5701,2	4th c.	CL
81. Θειοφάνης	(4)	IG II ² 5804	4th c.	CL
82. Αἰξωνείω[ς]	(4)	IG II ² 5848,11	4th c.	CL
83. 'Ερχιείως	(4)	IG II ² 6135,6	4th c.	CL
84. 'Αλαίειως	(4)	IG II ² 7269,6	4th c.	CL
85. 'Αρχικλείους	(4)	IG II ² 7350,2	4th c.	CL
86. Σου]νείως	(4)	IG II ² 7440,3	4th c.	CL
87. Στρατοκλείους	(4)	IG II ² 12177	4th c.	CL
88. Κλειαρίστη	(4)	BCH 90,727	4th c. (SEG 23,132)	CL
89. <Δ>ωροθέιο	(4)	BCH 90,727	4th c.	Ph.
90. 'Αριστοκλείους	(4)	BCH 94,912,2,1	4th c.	Ph.
91. Δημοκλείους		SEG 21,830,2	end 4th c.	Ph.
92. Λυσικλείων	(1)(4)(5)	Def. 9,20	4th/3rd c.	Comm.
93. Κλείαν[δ]ρος	(1)(4)(5)	Def. 9,24	4th/3rd c.	CL
94. Δωρόθειος	(1)(4)	Zie. I 4,4	4th/3rd c.	CL
95. Πυθείας	(1)(4)	Zie. I 4,4	4th/3rd c.	Comm.
96. Θεϊόδοτος	(1)(4)	Zie. I 4,5	4th/3rd c.	CL
97. Μελιτέως		SEG 25,255,3	just after 300	Comm.
98. 'Αριστοκλείους		SEG 25,255,6	just after 300	Ph.
99. Κλειαινέτος		IG II ² 1252,1	just after 300 (SEG 14,82)	Ph.
100. ὀργειώνων		IG II ² 1253,6	just after 300 (SEG 14,82)	Comm.
101. γρα]μματέια		SEG 21,340,14	just after 300	CL
102. βασιλεία		IG II ² 743,10	begin. 3rd c.	Ph.
103. Θεϊόδωρος		SEG 18,106,1	begin. 3rd c.	CL
104. πρέσβειων		IG II ² 653,49	289/8	CL
105. βασιλεί[α]		IG II ² 654,36	289/8	CL
106. πλείονος		IG II ² 1165,22	300/250	CL
107. ὀργειῶνας	(3)	IG II ² 1284,9	ca. 250	CL
108. [πλ]ειονάκις		SEG 21,532,9	227/6	—
109. γραμματέια		IG II ² 2943,15	3rd c.	Ph.
110. Ναυκλείος	(5)	IG II ² 9153,2	3rd c.	CL

7. Norm: <IEI> corresponding to tentative /ie:/.
Var.: <EI>.

1. χαῖρε καὶ πει	(1)(2)	Kr. 196, n. 1	550/25	Comm.
2. χαῖρε καὶ πει	(1)(2)	Kr. 196, n. 1	550/25	Comm.
3. ἔτι τι πει	(1)(2)	Graef I 2560	530/00	Ph.
4. ταμείω	(2)(3)	IG II ² 2501,12	end 4th c.	CL
5. ταμείου	(2)	SEG 22,128,32	240/35	Ph.

1-3. πίει = πίε, common form in vase inscriptions.

8. Norm: <EI> corresponding to tentative /e:/.
Var.: <IEI>.

1. πράττει	(1)(5)	Def. 66,b 2	begin. 4th c.	FS
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9. Norm: <E>/<EI> corresponding to tentative /e:/.
Var.: <IE>.

1. Πιεραεύς	(3)	IG II ² 7181,3	4th c.	CL
2. Μνημεία	(3)	IG II ² 11659,1	4th c.	CL

10. Norm: <E> corresponding to tentative /e:/.
Var.: <IE>.

1. πε[π]ραμένου ιεπί		IG II ² 2721,1	before 350? (My dating)	CL
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11. Norm: <H> (OA <E>).
Var.: <EI>.

1. 'Αθεινάα	(1)(5)	Gerh., AV pl. 192	6th/5th c.	FS
2. ἔστεισ[ε]	(3)	IG II ² 2640,1	5th c.	CL

12. Norm: <E>/<EI> corresponding to tentative /e:/.
Var.: <H>.

1. 'Ηρίνη	(4)(6)	IG II ² 11494,2	410/390	CL
2. ἐγ Κηρ		IG II ² 1558,69	ca. 330/10 (SEG 18,36)	CL
3. χῆρας	(1)(4)	Def. 90,a 6	4th/3rd c.	CL
4. Πολύκλητος		IG II ² 7079,1	ca. 250	CL
5. 'Ηπηρῶτις	(5)	IG II ² 8537,2	3rd c.	Inscr. exar

1. = Εἰρήνη?

13. Norm: <H>, (403—200).
Var.: <E>.

1. ξύνδικός ἐστι ἔ μάρτυς	(1)(4)(5)	SEG 21,1093,7	begin. 4th c.	Ph.
2. τὴν Γέν	(1)(4)(5)	Zie. I 18,15	begin. 4th c. (p. 118)	CL
3. μετέρα	(1)(4)(5)	Zie. I 18,17	begin. 4th c. (p. 118)	CL

4. τες εισαγωγής	(4)	IG II ² 1237,69	396/5	CL
5. [ε]λικτῆρες	(4)	IG II ² 1424a,44	369/8	Inscr. exam.
6. ἄστατος, ἐγ Κλ[	(4)	IG II ² 1425,295	368/7	Inscr. exam.
7. πέλ[ηξ	(4)	IG II ² 1428,172	366/5	CL
8. ὁ δῆμος	(4)	IG II ² 3454,1	before 350	CL
9. Ἀθenoδώρα	(4)	IG II ² 7515,3	before 350	Ph.
10. Ἐλίκε	(4)	IG II ² 5495a	ca. 350	CL
11. Ἐρμῆν	(1)(4)(5)	Peek 97,9,1	ca. 350	Comm.
12. Ἐρμῆν	(1)(4)(5)	Peek 97,9,5	ca. 350	Comm.
13. τέν	(1)(4)(5)	Peek 97,9,5	ca. 350	Comm.
14. τέ<ν>	(1)(4)(5)	Peek 97,9,6	ca. 350	Comm.
15. Ἐρμῆν	(1)(4)(5)	Peek 97,9,6	ca. 350	Ph.
16. Ἐρμῆ<ν>	(1)(4)(5)	Peek 97,9,8	ca. 350	Comm.
17. [Ἐ]ρμῆν	(1)(4)(5)	Peek 97,9,9	ca. 350	Comm.
18. τέν	(1)(4)(5)	Peek 97,9,10	ca. 350	Comm.
19. Ἐρμῆν	(1)(4)(5)	Peek 97,9,12	ca. 350	Comm.
20. τέ<ν>	(1)(4)(5)	Peek 97,9,15	ca. 350	Comm.
21. τέ<ν>	(1)(4)(5)	Peek 97,9,16	ca. 350	Ph.
22. Ἐρμῆν	(1)(4)(5)	Peek 97,9,17	ca. 350	Ph.
23. Δημέτρ[ι]ον	(1)(4)(5)	Peek 97,9,6	ca. 350	Comm.
24. κηραμοδότην	(1)(4)(5)	Peek 97,9,9	ca. 350	Comm.
25. Σιμάλεν	(1)(4)(5)	Peek 97,9,13	ca. 350	Comm.
26. Πίστην	(1)(4)(5)	Peek 97,9,13	ca. 350	Ph.
27. ψυχέν	(1)(4)(5)	Peek 97,9,15	ca. 350	Ph.
28. βουλέν	(1)(4)(5)	Peek 97,9,16	ca. 350	Ph.
29. Φερσεφόνειν	(1)(4)(5)	Peek 97,9,18	ca. 350	Comm.
30. Δεμοστράτη		IG II ² 5475,1	after 350	CL
31. χρεσ[τός]	(5)	IG II ² 12809	after 350	CL
32. Δημετρία		Delt. 23:2:1,33,1	350/00	Ph.
33. [Δ]ήμετρα		IG II ² 1183,12	after 340	Inscr. exam.
34. συνεγορήσειν		IG II ² 1183,14	after 340	Inscr. exam.
35. μέ		IG II ² 1183,22	after 340	Inscr. exam.
36. μεν[ός]		IG II ² 1183,36	after 340	CL
37. σησεμασμένον		IG II ² 1455,7	340/39	CL
38. ἐχένι<α>		IG II ² 1455,25	340/39	CL
39. ὑπεργυρωμένος	(3)	IG II ² 1652,14	333/2	CL
40. Κεφισ(		IG II ² 1569,71	ca. 330	CL
41. [β]ήσεσι		IG II ² 1588,13	325/0 (Hesp. 19,280)	CL
42. ἐν σ]τέ[λ]ει		IG II ² 1203,18	324/3	Inscr. exam.
43. Κυδαθε[να]ιεύς		IG II ² 486,9	304/3	CL
44. Μοιρογένης	(4)	IG II ² 11646	4th c.	CL
45. Ἀθenaῖος	(1)(4)	Zie. I 8,1	4th c.	Comm.
46. Ἀθenaῖος	(1)(4)	Zie. I 8,2	4th c.	Comm.
47. Ἀθenaῖος	(1)(4)	Zie. I 8,3	4th c.	Comm.
48. Νερ[ε]ίδ[ο]υ	(1)(4)	Audoll. 90,60,11	4th c.	Comm.

39. = ἐπηρ-.

49. τέ<ν>	(1)(4)	IG II ¹ 1061,18	end 4th c.	CL
50. Ἐρμῆ	(1)(4)	Def. 93,a 2	4th c.? (Wilh., p. 110)	CL
51. Ἐρμῆ	(1)(4)	Def. 93,a 3	4th c.? (Wilh., p. 110)	CL
52. κχταδενύ[ω]	(1)(4)	Def. 94,2	4th c.? (Wilh., p. 110)	CL
53. βοεθό{ι}ς	(1)(4)	Def. 94,5	4th c.? (Wilh., p. 110)	CL
54. Διοκλῆν	(1)(4)	Def. 94,12	4th c.? (Wilh., p. 110)	CL
55. Διοκλῆν	(1)(4)	Def. 94,15	4th c.? (Wilh., p. 110)	CL
56. μέ	(1)(4)	Def. 94,13	4th c.? (Wilh., p. 110)	CL
57. βοεθός	(1)(4)	Def. 94,14	4th c.? (Wilh., p. 110)	CL
58. δικαστερῖωι	(1)(4)	Def. 94,16	4th c.? (Wilh., p. 110)	CL
59. μεθ' ἐν	(1)(4)	Def. 94,17	4th c.? (Wilh., p. 110)	CL
60. Φιλομένειν	(1)(4)	Def. 116,6	4th c.? (Wilh., p. 110)	CL
61. Ἐδύλην	(1)(4)	Def. 54,a 4	4th/3rd c.	CL
62. αὐτῆς	(1)(4)	Def. 79,4	4th/3rd c.	CL
63. Ἐρμῆ	(1)(4)	Def. 162,II	4th/3rd c.	CL
64. ἀότέν	(1)(4)	Def. 90,a 3	4th/3rd c.	CL
65. Σφεττ[		IG II ² 1546,7	begin. 3rd c.	CL
66. Πολύ<ζ>ελος	(3)	IG II ¹ 329,27	256/5 (SEG 21,377)	CL
67. Ἀθenaῖων		IG II ² 793,8	after 255	CL
14. Norm.: <E> corresponding to tentative /e/. Var.: <H>.				
1/2. χαῖρην καὶ πρίω μὴν	(1)(4)(6)	CVA DK 3, pl. 117,5	550/25	CL
3. Θήτις	(1)(4)	Hopp., Rf. II 143,20	500/475	CL
4. Ἡρμῆς	(1)(4)	Hopp., Rf. II 467,18	475/50	CL
5. Μηλανόπο	(1)(4)	CVA GR 1, IIIJc, pl. 2,1—2	ca. 460	CL
6. Μηλανόπ[ο]	(1)(4)	CVA B 1, IIIJb, pl. 4,3	450/20	FS

1/2 = χαῖρε παὶ πρίω μέ?

7. Μηλανόπο	(1)(4)	ARV 996,141	450/20	
8. 'Ηλένη	(1)(4)	Hopp., <i>Rf.</i> I 347,7	450/20	CL
		Pfuhl, fig. 556	450/20	CL
9. 'Ηρμῆς	(1)(4)	Pfuhl, fig. 556	450/20	FS
10. 'Ηκάτε	(1)(4)	Richt., <i>MM</i>	ca. 420	FS
11. 'Ηρμῆς	(1)(4)	194,154		CL
		IG I ² 1038	before 403	
12. [Κλε]ομήνης	(4)	Hopp., <i>Rf.</i> II 192,47	end 5th c.	Comm.
13. Μηλίττη	(1)(4)			CL
14. 'Ηρμαῖος	(4)(5)	Hesp. 3,87,105,1	end 5th/begin. 4th c.	FS
15. καταδήω	(1)(4)(5)	Def. 70,1	begin. 4th c.	Comm.
		(Zie. I p. 118)		
16. καταδήω	(1)(4)(5)	Def. 70,4	begin. 4th c.	Comm.
		(Zie. I p. 118)		
17. κα[τα]δήω	(1)(4)(5)	Def. 70,5	begin. 4th c.	Comm.
		(Zie. I p. 118)		
18. καταδήω	(1)(4)(5)	Def. 70,6	begin. 4th c.	Comm.
		(Zie. I p. 118)		
19. ἐμή	(1)(4)(5)	Def. 102,a 8	begin. 4th c.	FS
		(Wilh., p. 112)		
20. καταδήω	(1)(4)(5)	Zie. I 18,1	begin. 4th c.	Comm.
		(p. 118)		
21. 'Ηκάτην	(1)(4)(5)	Zie. I 18,13	begin. 4th c.	CL
		(p. 118)		
22. καταδήω	(1)(4)(5)	Zie. I 19,1	begin. 4th c.	CL
23. κάτοχη	(1)(4)(5)	Zie. I 19,7	begin. 4th c.	CL
24. ἐνεπησκήψατο	(4)	SEG 12,100,18	367/6	Ph.
25. ἐπ' ἡμοί	(1)(4)	CIG 539,6	360/30 (Def. 100)	FS
26. παρακατατίθημαι	(1)(4)	CIG 539,7	360/30 (Def. 100)	FS
27. κάτοχη	(1)(4)	CIG 539,8	360/30 (Def. 100)	FS
28/9. κολάζητη	(1)(4)	CIG 539,12	360/30 (Def. 100)	FS
30. Μελησάνδρο	(4)	IG II ² 1619,28	after 358/7	CL
31. [Ι]ηρ<ο>κλέης	(3)(4)	IG II ² 7614,4	before 350	CL
32/33. τέρην' ἦν τε	(3)(4)	Hesp. 16,287,1,3	before 350	CL
34. 'Εργαμήνης	(4)	IG II ² 5962,1	ca. 350	CL
35. Τελησίας	(1)(4)(5)	SEG 24,263,II 1	ca. 350	Comm.
36. τήν κηφα[λήν]	(1)(4)(5)	Peek 97,9,3	ca. 350	Comm.
37/38. κηραμοδέτην	(1)(4)(5)	Peek 97,9,9	ca. 350	Comm.
39. Λυσικλήους		IG II ² 5338,1	after 350	CL
40. Λήσβιος	(5)	IG II ² 9203,2	ca. 346	CL
41. χιτώνιον ἡμι]υφής		IG II ² 1514,59	350/35 (SEG 21,555)	CL
42. ἐπηγ[έγραπτο		SEG 15,120,15	ca. 346/35	Ph.

31. [.]ΗΡΙΚΛΕΗΣ ed.
37/38. = κεραμοδέτην.

43. σησεμασμένον		IG II ² 1455,7	340/39	CL
44. σησ<η>μασμένα		IG II ² 1455,16	340/39	CL
45. ἡτέρα		IG II ² 1498,76	ca. 340/30	CL
46. [Ε]ύμήνει		Hesp. Suppl. 9,25, Add. II b 2	338/7? (Hesp. 3,65,57)	Ph.
47. Δηκελέως		Hesp. Suppl. 9,25, Add. II b 4	338/7? (Hesp. 3,65,57)	Ph.
48. λήβητες		IG II ² 1544,65	329/8	CL
49. ἡλθόντες		IG II ² 1672,297	329/8	Comm.
50. ἐπεμηλήθη		IG II ² 1263,8	301/299	CL
51. ἀνήθηκεν	(4)	IG II ² 4633,3	4th c.	CL
52. Ναυσικλήους	(4)	IG II ² 7092	4th c.	CL
53. ἰσοτηλής	(4)	IG II ¹ 2731,1	4th c. (IG II ² 7875)	CL
54. κηδησταί	(1)(4)	Def. 65,6	4th c. (Wilh., p. 119)	CL
55. ἐμπεδορκοῖην	(4)	Tod II 303,204,49	4th c.	Comm.
56. θη	(1)(4)(7)	IG II ² 2784,2	4th c.? (My dating)	FS
57/58. κατήδησεν	(1)(4)(5)	Def. 46,4	4th/3rd c.	FS
59. Νικοθήαν	(1)(4)	Def. 54,a 6	4th/3rd c.	CL
60. 'Ηρμῆν	(1)(4)	Def. 91,3	4th/3rd c.	CL
61. 'Ηρμῆν	(1)(4)	Def. 91,5	4th/3rd c.	CL
62. τή<ν> τήχνη[ν]	(1)(4)(7)	Def. 110,10	4th/3rd c.	CL
63. Τη<λ>έσιππος	(1)(4)	Def. 117,3	4th/3rd c.	FS
64. [Ε]ύαρήτη	(1)(4)	Def. 117,4	4th/3rd c.	FS
65. καταδησμός	(1)(4)	Def. 123,2	4th/3rd c.	CL
66. 'Ωφελίων	(1)(4)	Zie. I 3,2	4th/3rd c.	Comm.
67. 'Ηρμω[ν]	(1)(4)	Audoll. 89,54	4th/3rd c.	Comm.
68. ἐ<ρ>γάζηται	(1)(4)	Def. 90,a 2	4th/3rd c.	CL
69. γίνεσθαι	(1)(4)	Def. 90,a 6	4th/3rd c.	CL
70. ἀνέθηκη	(5)	SEG 22,165	begin. 3rd c.	Ph.
71. προηδρίαν		SEG 14,64,30	271/0	Ph.
72. πλήονος		SEG 24,128,13	229 or just after	Ph.

44. ΣΗΣΛΑΜ stone.

56. Probably schoolboy's tablet.

15. Norm: <Ε> corresponding to tentative /e/.
Var.: <HE>.

1. Μεγακλῆς	(1)(4)	Delt. 23:2:1, pl. 19a	487/6 (p. 28)	Ph.
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16. Norm: <H>.
Var.: <IH>.

1. Περικλήης	(6)	IG II ² 12447/8	ca. 400
2. ἀρετιήν	(3)	IG II ² 11659,5	4th c.

1. Perhaps = Περικλέης; hence marked (6).

17. Norm: <H> (OA <E>).
Var.: <I>.

1. [hep]μῖς	(1)(3)	CVA F 1, IIIHd, 600/575 pl. 5,6,14	Spec. ph.
2. hepμῖς	(1)	CVA F 1, IIIHd, 600/575 pl. 5,8,16	Spec. ph.
3. Νικοσ<τέ>νις	(1)	Hopp., Bf. 211,25 bis	CL
4. Ἐυφίβος	(1)	Kr. 138,120	530/00
5. Λάκις	(1)	CVA F 3, pl. 17,2,5	530/00
6. Ἀγάπι	(1)(5)	Hopp., Rf. I 404,14	end 6th c.
7. Χάρις	(1)(6)	ABV 664	blackf.
8. h<ε>ρ{ε}μῖς	(1)	CVA F 9, III Ic, pl. 49,7—9	end 6th/begin. 5th c.
9. καλὶ Θάλεια	(1)	CVA B 1, III Ic, pl. 2,2	500/475
10. Γραγ(ττιος)	(1)	Hesp. Suppl. 5,144,39	ca. 480 (Hesp. 24,288 ¹³)
11. καλὶ	(1)	ARV 974,23	475/50
12. hi πανις	(1)(2)	Kr. 189	475/50
13. χρίματα	(3)	ATL II D 10,36	453/2
14. Ἰφαιστος	(1)	CVA D 22, pl. 113,1—2	ca. 440
15. Πιδ<α>σῆς	(5)	ATL II A 9, II 149	425/4
16. Ἀθινᾶ	(1)	SEG 19,37,1	5th c.
17. Ἀρις	(1)	SEG 19,37,1	5th c.
18/19. Διμοσθένις	(1)	SEG 19,37,2	5th c.

1. I is a heavy stroke (marked (3)), but it is written exactly between M and Σ.
4. = Ἐφρηβος (or Εὐφρηβος?), either without relevance to this instance; hence not marked (but cf. Vars. 82 and 117).

6. = Χάρης or Χαρί<α>ς; marked (6).
7. = Λάχης.

12. = he παῖς. The *iota* is not complete; marked (2).
16–19 Prob. schoolboy's tablet. Found in the Academy of Plato together with about

hundred of the same kind, on which there is a large number of iotacistic writings. Unfortunately only the present tablet has as yet been published.

20. Ἡρήνη	(6)	IG II ² 11494,2	410/390	CL
21. φέμη	(1)(5)	Def. 71,4	begin. 4th c.	Comm. (Class. Rev. 1890,187)
22. τὴν φυλὴν	(3)	IG II ¹ 555,9	376/5	CL
23. Παλλινεύς	(2)(3)	IG II ² 7124,5	before 350? (My dating)	CL
24. Ἀραφίνιοι	(3)	IG II ¹ 870,12	ca. 350 (IG II ² 1747)	CL
25. Μεγα<κ>λίς	(3)	IG II ¹ 870,2	ca. 350 (IG II ² 1747)	CL
26. χρυσ[τοσύνης]		IG II ¹ 3682,2	after 350 (IG II ² 11375)	CL
27. Θυα[ί]νι	(2)	IG II ² 1515,7	345/4	Inscr. exam.
28. Θυαίνι		IG II ² 1514,13	344/3	CL
29. Ἀθήν[ισιν]		IG II ² 435,14	after 336/5	Inscr. exam.
30. νομινίαι		IG II ² 2499,24	306/5	Inscr. exam.
31. Διοπ<εῖθ>ις	(3)	IG II ¹ 1061,15	end 4th c. (IG II ² 2501)	CL
32. Μνισιφῶν	(3)	IG II ² 12168	4th c.	CL
33. [Μ]νησα[ρ]χίδι		IG II ¹ 1791,7	4th c. (IG II ² 5501)	CL
34. τὴν π<υγ>ί	(1)	Def. 89,a 7	4th c.	CL
35. Ἐρμί	(1)(3)	Def. 120,4	4th c. (Wilh., p. 110)	CL
36. ἱμῶν	(1)(3)	CIG 1034,11	4th/3rd c.	CL
37. χρυστή	(2)(5)	IG II ² 8537,3	3rd c.	Inscr. exam.

20. = Εἰρήνη?

27. I is written to the left in the column; marked (2).

31. ΙΟΠΠΟΙΣ ed.

37. ΧΡΙΣΤΗ stone.

18. Norm: <I> corresponding to tentative /i/.

Var.: <H> (OA <E>).

1. ΚαλIIας	(1)(2)	CVA I 16	500/475	CL
		Orvieto, III Ic, pl. 4,1—2		
2. Καλήμορφος	(1)(6)	Wer. 73	redf.	CL
3. Δὴ Μορίω<ι>	(2)(3)	IG I ² 844/5, B 9	410/05 (SEG 15,14)	Comm.
4. διαχειρήσας		IG II ² 1191,24	321/0	Inscr. exam.
5. Ἐπίχαρης — Μιλησία	(5)	IG II ² 9579,1	after 317/6	Comm.

2. May perhaps be interpreted καλὴ Μορφώ<ς>; marked (6).

3. H = II, not I; hence marked (2).

4. The eighth letter is H, not I as stated by Skias, *Arch. Eph.* 1896,56.

6. Φιλήστου	(3)	IG II ² 6767,1	4th c.	CL
7. ΤΙΙ-τθ	(2)	IG II ² 12816,1	4th c.	Inscr. exam.
8. κη	(3)	IG II ² 2784,4	4th c. (My dating)	FS
9. τήν [κ] [ν] πη-	(1)(5)	Def. 68,b 6	4th/3rd c.	CL
10. 'Επικρατής —	(3)(5)	IG II ² 10279,1	3rd c.	CL
Σιδωνία				

8. Probably schoolboy's tablet.
10. 'Επικρατής Pitt., 'Επικρατής Loll.; marked (3).

19. Norm: <I> corresponding to tentative /i:/.
Var.: <H> (OA <E>).

1. ΗΜΕΡΟΣ	(1)(4)	KL 135	450/20	CL
2. Σικινέται	(5)	IG I ² 63,90	425/4	CL
3. Σικινήται	(5)	IG II ² 43,B 31	378/7	CL

20. Norm: <HI>/<EI> (OA <EI>) corresponding to tentative /ε:i/.
Var.: <H> (OA <E>).

1. ἐν ἑ οἶνο<ν>	(1)(2)(6)	CC 217,692	560/30	FS
τοῖεν				
2. δυ' ὀβελο καὶ με	(1)(2)(6)	ABV 136,50	ca. 550	Ph. (Amyx)
θίγες				
3. ἐν ἐμὲ κνερίνε	(1)(2)(6)	AJA 64,219,I	500/475	Ph. (Hopp., I 245)
4. Μενεκέδες	(2)	IG I ² 429,1	before 480	CL
5. Βασίλεις	(1)(2)	Kr. 140,122	450/20	CL
6. ἑ ἄλαδε	(2)	IG I ² 94,35	418/7	CL
7. ἐν Κ[ο]ίλε χοικῶν	(2)	IG I ² 374,198	408/6	CL
8. ἐν Κοί[λ]ε	(2)	IG I ² 374,235	408/6	CL
[χοι]κῶν				
9. Οἰνῆδι	(2)	SEG 18,69,2	384/3	Ph.
10. Φερσεφόνη	(1)(2)(5)(6)	CIG 538,3	380 (Def. 101)	CL
11. ὀγδοὴ ἱσταμένο	(2)	SEG 21,541,V 39	375/50	Ph.
12. τρίτη ἱσταμένου	(2)	SEG 21,541,I 58	375/50	Ph.
13. λῆον	(2)	IG II ² 1425,264	368/7	Inscr. exam.
14. τῇδ' ἀνέθηκαν	(2)(3)	CIG 568,2	ca. 360 (IG II ² 5421a)	CL
15. Χολλήδης	(2)	IG II ² 159,2	before 353/2	CL

2. = μὴ θίγης or με θίγε(ι)ς or μ' ἔθιγες. Marked (6).
3. = ἦν ἐμὲ ἐγκρίνη? Marked (6).
10. May be voc.; hence (6).

16. ἐν τῇ	(2)	SEG 19,129,17	352/1	Ph.
χα[λκοθ]ήκη : ἐν				
17. [ἄ]λλ[ι] εἰδότης	(2)	IG II ² 1183,9	after 340	Inscr. exam.
18. τῇ πόλει	(2)	IG II ² 1623,151	333/2	CL
19. ὅτ]αν πίη ἀφ'	(1)(2)(3)	CIG 1034,11	4th/3rd c.	CL
ἱμῶν				
20. τῇ 'Αθηνᾶι	(2)	IG II ² 674,16	277/6	Inscr. exam.
21. τῇ Κόρ[η]ι	(2)	IG II ² 847,14	ca. 215/4	CL

17. The two strokes are written together exactly stoichedon.

21. Norm: <H> (OA <E>).
Var.: <HI>.

1. τριήραρχ[οι]		IG II ² 1612,101	356/5	CL
2. Μαλθάκη		IG II ² 12023a	ca. 350	Comm.
3. 'Αμφαρέτη	(3)	IG II ² 12427a	ca. 350	—
4. [Λακιά]δης		IG II ² 1629,161	325/4	CL

2-3. Nom. fem.

22. Norm: <HI>/<EI> corresponding to tentative /ε:i/, (403—200).
Var.: <E>.

1. δωδεκάτε,	(2)(4)	SEG 21,541,IV	375/50	Ph.
'Αθηνᾶι		14		
2. ἐνάτε ἐπί	(2)(4)	SEG 21,541,V 2	375/50	Ph.
3. Ἱπποτομ[ά]δε	(2)(4)	IG II ² 2654,8	363/2	CL
Φιλοδήμοι				
4. 'Αλικαρ]νασσῆ ἐπί	(2)(4)	IG II ² 136,3	354/3	CL
5/6. τῇ χαλκ[οθ]ήκη	(2)(4)	IG II ² 120,35	353/2 (SEG 16,49)	CL
αὐτῇ				
7. Πτωχῇ Φιλ	(2)	Hesp. 7,116,22,11	251/0	Ph.
8. Καλλίστη	(2)	SEG 18,87,1	249/8	Ph.
9. 'Αρίστη	(2)	SEG 18,87,2	249/8	Ph.

23. Norm: <HI> (OA <EI>).
Var.: <EE>.

1. Βρισεές	(1)	Kr. 140,122	500/475	Comm.
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24. Norm: <EI> corresponding to tentative /ε:i/ or /e:/.
Var.: <EII>.

1. Τέλιοι	(5)	ATL II 9, I 15	446/5	CL
2. Κλειππίδης	(1)	Ath. Mitt.	443 (Peek, p. 84,160)	CL

3. Κλ]ειπ[πιδ	(1)	<i>Ath. Mitt.</i> 40,14,28	443 (Peek, p. 84,160)	CL
4. Τείιοι	(5)	<i>ATL II</i> 15,I 10	440/39	CL
5. Τείιοι	(5)	<i>IG I²</i> 64,17	425 (Mhs, p. 65, n. 552)	CL

25. Norm: <EI>.
Var.: <HI>.

1. Κληπι[πιδ]ης	(1)(4)	<i>Ath. Mitt.</i> 40,14,31	443 (Peek 84,160)	Ph.
2. ἐμ πόλῃ	(4)(6)	<i>SEG</i> 10,76,3	425/4	Ph.
3. ἐν δὲ Νέαι πόλῃ	(4)(6)	<i>IG I²</i> 108,35	410/09	CL
4. Δημοκ]ράτη	(4)	<i>IG II²</i> 1375,25	400/399	CL
5. Θρασυκλῆ	(1)(4)	Wilh. 94,4	end 5th/begin. 4th c. (p. 102)	Ph.
6. ἐν] πόλῃ	(4)(6)	<i>IG II²</i> 17,10	394/3	CL
7. ἐν ἀκροπ]όλῃ	(4)(6)	<i>IG II²</i> 84,4	before 378/7	CL
8. τῇ πόλῃ	(4)(6)	<i>IG II²</i> 42,5	378/7	CL
9. δοκῇ	(4)	<i>IG II²</i> 107,12	368/7	Comm.
10. Ἀργηῖος	(4)(5)	<i>IG II²</i> 3038,5	364/3	CL
11. πράξις	(1)(4)	<i>CIG</i> 539,7	360/30 (Def. 100)	FS
12. τηρηῖν	(1)(4)	<i>CIG</i> 539,8	360/30 (Def. 100)	FS
13. τηρηῖν	(1)(4)	<i>CIG</i> 539,11	360/30 (Def. 100)	FS
14. τῶ[ι γραμμ]ατῇ	(4)	<i>IG II²</i> 148,7	356/5	CL
15. προσοφηλῃ[ι]	(4)	<i>IG II²</i> 1678,a B 56/7	ca. 350 (<i>SEG</i> 13,49)	CL
16. τῇ ἀκροπόλῃ[ι]	(3)(6)	<i>IG II²</i> 217,9	346/5	CL
17. ἀκροπόλῃ	(6)	<i>IG II²</i> 222,29	ca. 344/3	CL
18. ἀκροπόλῃ	(6)	<i>IG II²</i> 278,11	before 336/5	CL
19. ἀκροπ]όλῃ	(3)(6)	<i>IG II²</i> 293,4	before 336/5	—
20. ἀκροπόλῃ	(6)	<i>IG II²</i> 333,a 12	335/4	CL
21. Πολυμήδῃ		<i>IG II²</i> 1544,8	329/8	CL
22. Ἀπολλοφάνῃ		<i>IG II²</i> 1672,190	329/8	CL
23. τῶι — ξτῇ		<i>IG II²</i> 2498,18	321/0	CL
24. ἀκροπόλ]ῃ	(6)	<i>IG II²</i> 1152,12	end 4th c.	CL

2 etc. πόλῃ marked (6); cf. Schwyz., *GG I* 572.

16. The *iota* is not legible, but as the inscription is written *stoichedon* the instance is accepted.
Marked (3).

26. Norm: <HI>.
Var.: <I>.

1. Αλγίδι	(2)(5)			
2. Βρισίς	(2)	<i>Delt.</i> 25:1,147,7,3 <i>IG II²</i> 10983,2	352/1 ca. 350	Ph. CL

3. Ἐρμ[.] καὶ Φερσεφ[ό]νι τήνδε	(1)(2)(5)	<i>Def.</i> 103,a 1	323/2 (Wilh., pp. 122—125)	CL
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27. Norm: <A> corresponding to tentative /a/.
Var.: <H>.

1. ἤχσ[ιον]	(3)	<i>ATL II D</i> 10,3	453/2	CL
2. ἡπάσας	(1)(4)(5)	<i>Zie. I</i> 18,11	begin. 4th c. (p. 118)	Comm.
3. πηρὰ Χαρμινήστου		<i>IG II²</i> 1629,509	ca. 325/4	CL

28. Norm: <H>.
Var.: <A>.

1. Σαλυβρίαν	(5)	<i>IG I²</i> 1034,5	5th/4th c. (Mhs, p. 84, n. 718)	CL
2. Καλχαδόνιος	(5)	<i>IG II²</i> 8949,3	after 350	Inscr. exam.
3. Σαλυπριανός	(5)	<i>IG II²</i> 10261a	after 350	CL
4. σῆσ Αμασμένα	(2)	<i>IG II²</i> 1455,16	340/39	CL
5. ἐγγυατή[ν]		<i>IG II²</i> 2498,6	321/0	CL

3. = σεσημασμένα.

29. Norm: <EI>.
Var.: <A>.

1. πία	(1)	<i>Kr.</i> 196,175	blackf.	Comm.
2. πία	(1)	<i>Kr.</i> 196,175	blackf.	Comm.

1-2. πίει is the normal imper. form in vase inscriptions.

30. Norm: <E> corresponding to tentative /e/.
Var.: <A>.

1. Ἀ[ρ]ταμίν	(1)(5) (Ass)	<i>Def.</i> 75,b 1	4th/3rd c.	CL
2. Ἀρταμ<ιν>	(1)(5) (Ass)	<i>Def.</i> 75,b 10	4th/3rd c.	CL
3. προ]σπαράδοσαν	(7) (Ass)	<i>SEG</i> 19,130,5	just after 300	Ph.
4. Ἀκαλῆθεν	(Ass)	<i>IG II²</i> 6014,3	3rd c.	CL

31. Norm: <A> corresponding to tentative /a/.
Var.: <E>.

1. ἡερμόν]εχς	(1)	<i>ARV</i> 483,6	475/50	CL
2. Ψεμάθε	(1)(6) (Diss)	<i>Kr.</i> 117	450/20	Comm.

3. προσαγεγῆν	(Ass) (Diss)	IG I ² 45,36	439/8 (SEG 21,29)	CL
4. περ[α]σεσήμανται	(Diss)	IG II ² 1425,95	368/7	Inscr. exam.
5. δέρετης	(Ass)	IG II ² 11812,3	ca. 350	CL

5. = δ' ἀρετῆς. Distichon.

32. Norm: <A> corresponding to tentative /a/.
Var.: <I>.

1. τετίρωι	IG II ² 1534,45	291/0 (SEG 16,118)	CL
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33. Norm: <AI> corresponding to tentative /a:i/.
Var.: <A>.

1. 'Αθελιά	(1)(2)	Graef II 1354	ca. 500	Ph.
2. νικᾶ 'Αφροδίτη	(1)(2)	CVA GB 2, III He, pl. 14,5	6th/5th c.	Spec. ph.
3. 'Αθελιά	(1)(2)	Graef II 1356	6th/5th c.	Comm.
4. 'Αθελιά[	(1)(2)	Graef II 1366	6th/5th c.	FS
5. τᾶθελιά :	(2)	IG I ² 408,2	before 480	Inscr. exam.
ἄπαρχέν				
6. τᾶθελιά	(2)	IG I ² 456	before 480	Comm.
ἄ[ι]παρχέν				
7. 'Αθελιά	(1)(2)	IG I ¹ s., p. 197,373,12 b	before 480	FS and Comm.
8. 'Αθελιά :	(2)(6)	IG I ² 495,2	ca. 480 (SEG 15,37)	FS
χεχ[αρισμένον				
9. κωμοιδία	(2)	IG II ² 11387,5	ca. 350	CL
ἡδυγέλωτι				
10. ἰδία<ι> 'Α>θη-	(2)	SEG 16,51,12	ca. 340/39	Ph.
[ναίων				
11. Πιστία Σφηττί :	(2)	IG II ² 1672,52	329/8	Inscr. exam.
12. παρὰ ταμία το[ῖν	(2)	IG II ² 1672,112	329/8	Inscr. exam.
13. ἐν δεξιᾷ τοῦ	(2)(3)	Schwyz., GG I 201 β	ca. 320	—
14. εἰ[ς] "Αδ[ου	(1)(2)	Zie. I 15,10	4th c.	CL
15. ἰδία ἐκάστωι	(2)	Arch. Eph. 1900,150,10	300/250	CL
16. ἰδία τᾶγαθόν	(2)	IG II ² 1270,8	298/7	CL
17. Θραῖ	(2)(5)	IG II ² 8921	3rd c.	Comm.

2. Graffito on blackf. vase (ca. 550/40).
4. The last graph is probably an alpha.
5. May be voc. (cf. SEG 15,37); hence marked (6).
10. ΙΔΙΑΘΗ stone.

34. Norm: <A> corresponding to tentative /a:/.
Var.: <AI>.

1. τῆς 'Αθελιάς	(6)	IG I ² 250,244	412/1	CL
2. ἱερὰι 'Αθελιάς	(7)	IG II ² 1475,21	ca. 318/7	CL
3. χαρίτα[ς]		Hesp. 7,299,23,2	310/00	Ph.
ἄξι[α]([ι])ς				
4. σωτῆρε	(7)	IG II ² 3424,12	end 4th c.	CL
ΠΟΛΙΤΑΙ				
5. ταίς φρένας	(1)	Def. 94,4	4th c.? (Wilh., p. 110)	CL

1. The form 'Αθελιάς may have been intended; marked (6).
2. Nom. fem. sg.

4. Dual. The writer may have intended or unconsciously written the plural form; marked (7).

35. Norm: <AI> corresponding to tentative /ai/ - # /V/.⁷⁴
Var.: <A>.

1. 'Ανχᾶος	(1)(2)	Kr. 128	575/50	CL
2. Πάνφαος	(1)(2)	ARV 130,33	530/00	CL
3. Μοσᾶος	(1)(2)	Kr. 128	end 6th c.	Comm.
4. Χσιφεταόν	(1)(2)	Hesp. 19,388,26,3	483/2? (p. 377)	FS
5. Χσιφεταόνον	(1)(2)	Hesp. 19,388,27	483/2? (p. 377)	FS

⁷⁴ The morpheme {Πειραι} was excluded and treated separately in order to show the frequency of the variants <AI> and <A> respectively. The result was the following:

Period	Instances	
	<AI>	<A>
—400	18	1
400—350	24	11
350—300	52	28
300—250	38	2
250—200	7	1
Total	139	43

The earliest instance of <A> is Πειραεύς IG I² 1065,2, ca. 450.

Instances /-<I> have not been included, because in this position the variant <A> is predominant. During the 4th c. the form 'Αθελιάς is found 5 times as against 'Αθελιάς 9 times. The latter form is not found before 400 (cf. Mhs, p. 33,8).

6. 'Ακτάων	(1)(2)	Kr. 128	redf.	
7. Παναθενάοι[ς]	(1)(2)	ARV 1044,9	450/20	CL
8. Χρυπεταόν	(2)	IG I ² 355,8	440/39 (SEG 23,37)	CL
9. ἐμ Ποτειδ[ά]αι	(2)(3)	ATL II D 3,28	430/29	CL
10. ἡοάτος	(2)	IG I ² 370,8	421/15	Ph.
11. ἐν 'Ελαεῖ	(2)	IG I ² 283,132	419/8	Ph.
12. ἐλαῶν	(2)	IG I ² 94,33	418/7	CL
13. [ἐ]λαῶν	(2)	SEG 13,13,118	415/3	CL
14. 'Αθηνάων	(2)	IG II ² 49,2	begin. 4th c.	Ph.
15. Θρασυδάο	(2)(5)	IG II ² 1929,14	begin. 4th c.	CL
16. 'Αλαέα	(1)(2)	Def. 50,a 2	400/350 (Wilh., p. 118)	CL
17. 'Αλαε[ύς]	(1)(2)	Hesp. Suppl. 7,12,1	ca. 377?	Ph.
18. Κυδαθηνα[εύς]	(2)(3)	IG II ² 106,5	368/7	CL
19. κα ἐ[ν]	(2)	IG II ² 106,13	368/7	Comm.
20. [Φ]η[γ]α[εύς]	(2)(3)	IG II ² 128,7	356/5	CL
21. Πλαταεύς	(2)(5)	IG II ² 10096,2	ca. 350	CL
22. 'Αλαεύς	(2)(3)	IG II ² 5482,3	ca. 350	—
23. 'Αλαέως	(2)	IG II ² 5492,1	ca. 350	CL
24. 'Αλαεύς	(2)(3)	IG II ² 5511a,1	ca. 350	—
25. 'Αλαεύς	(2)(3)	IG II ² 5511a,1	ca. 350	—
26. 'Αλαεύς	(2)(3)	IG II ² 5511a,2	ca. 350	—
27. 'Ανακαεύς	(2)	IG II ² 5645,1	ca. 350	CL
28. Κυδαθηναέως	(2)	IG II ² 6097,9	ca. 350	CL
29. [Ἀνα]καέως	(2)	IG II ² 6197,5	ca. 350	CL
30. Ποτειδαεύς[ς]	(2)(3)(5)	IG II ² 10109,3	ca. 350	—
31. 'Οαε[ύς]	(2)	SEG 24,152,4	ca. 350	CL
32. Θορ<α>ῆς	(2)	SEG 24,165,5	ca. 350	Ph.
33. 'Αλαέως	(2)	IG II ² 5470	340/17	FS
34. κα ἐν	(1)(2)	Def. 55,a 17	prob. 325/4 (Wilh., pp. 107 f.)	CL
35. 'Αν[ακ]αέως[ς]	(2)	SEG 21,316,2	319/8	Ph.
36. 'Αλαεῖ	(2)	Hesp. Suppl. 9,33,17,10	315/4	Ph.
37. κ]ά Ισα	(2)	Hesp. 9,66,9,107	307/6	Ph.
38. τῆι δ[ε] ὑστερ[ά]αι	(2)	SEG 21,530,16	just before 300	Ph.
39. 'Αλαεῖ	(2)	IG II ² 2701,4	end 4th c.	CL
40. κα ἐξέστω	(2)(3)	IG II ² 1061,19	end 4th c.	CL
41. 'Αλαεύς	(2)	IG II ² 5485,3	4th c.	CL
42. 'Αλαεύς	(2)	IG II ² 5529/30,1	4th c.	CL

9. One space. Marked (3) because of the damage to the stone.
18 and 20. The inscriptions are written stoichedon. Marked (3) because of the damage to the stone.

32. ΛΗΣ stone.

43. 'Ανακαεύς	(2)	IG II ² 5647,2	4th c.	CL
44. Θοραε[ύς]	(2)	IG II ¹ 2081,2	4th c. (IG II ² 6214)	CL
45. 'Αλαεύς	(2)	SEG 1,31,3	4th c.	CL
46. 'Αλαέως	(2)	SEG 18,98,2	4th c.	Ph.
47. Κασσαναεῖς	(2)(5)	IG II ² 5227,1	end 4th/begin. 3rd c.	CL
48. [κ]ά ἔπεα	(1)(2)	Def. 84,b 2	4th/3rd c.	CL
49. 'Εσ]τιαεῖ	(2)	IG II ² 1546,9	begin. 3rd c.	CL
50. Φηγαέα	(2)	IG II ² 2797,6	290/89 (SEG 25,204)	CL
51. Φηγαέα	(2)	IG II ² 2797,13	290/89 (SEG 25,204)	CL
52. Κρηταέων	(2)(5)	IG II ² 687,25	265/4 (SEG 21,373)	CL
53. Κυδαθηναέα	(2)	IG II ² 1247,16	ca. 250	CL
54. στε]φαν<ω>σα<ι> ἔ>καζτον	(2)(3)	IG II ¹ 620,6	end 3rd c.	CL
54.]ΦΑΝΑΣΑΝΚΑΖΤΟΝ ed.				
36. Norm: <AI> corresponding to tentative /ai//_# /C/. Var.: <A>.				
1. ἡασιμίονι	(1)(2)	Jeff. 401, pl. 2,9c,2	7th c.?	Ph.
2. ἡέφαστος	(1)(2)	Jeff. 401, pl. 3,24,1	ca. 550	FS
3. νάχι	(1)(2)	ABV Paralip. 69	550/25	CL
4. ἡο πᾶς	(1)(2)	Hopp., Rf. II 118	530/00	CL
5. ἡο πᾶς	(1)(2)	Hopp., Rf. II 118,5	530/00	CL
6. 'Ασχ<ρ>λον	(1)(2)	CVA GB 3, pl. 1,2	ca. 520/10	CL
7. μά<ο>με κα ποτέο	(1)(2)	CVA F 8, III Ic, pl. 27,8—9	end 6th c.	Ph. (pl. 28,4)
8. πῖνε κλ χᾶρε	(1)(2)	ABV 669 A	6th c.	FS
9. πῖνε κλ χᾶρε	(1)(2)	ABV 669 B	6th c.	FS
10. ἡο πᾶς	(1)(2)	Beaz., Cypr. 236,6	blackf.	CL
11. Πα[ν]άτιος	(1)(2)	ARV 1646,333	500/475	CL
12. Πανάτιος	(1)(2)	ARV 1646,333	500/475	CL
13. ἡο πᾶς	(1)(2)	Hopp., Rf. I 131,59	500/475	CL
14. καλὸς ἡ πᾶς	(1)(2)	Richt., MM 50,26	ca. 480/70	FS

15. ho πᾶς	(1)(2)	Kr. 190	redf.	
16. ἡέφαστος	(1)(2)	CVA D 6, pl. 74,1—2	ca. 430	Comm. FS
17. ἐν — Ἀθήνας	(2)(5)	IG I ² 1084,2	ca. 420	
18. καὶ λεία	(2)	Arch. Eph. 1886,186,B 87	just after 400 (p. 207)	CL
19. γεγέννητα <π>ερί	(2)(3)	IG II ² 1141,9	376/5	CL
20. περόνα, ζώνιον	(2)	IG II ² 1424a,55	369/8	CL
21. καταγί(ειν)	(2)	SEG 21,541,III 12	375/50	CL
22. ἐ[π]ανέσαι	(2)	IG II ² 107,14	368/7	Ph.
23. λεία ΔΓ	(2)	IG II ² 1425,279	368/7	CL
24. γυναι	(2)	IG II ² 11016,2	ca. 360	Inscr. exam.
25. Ἀνάτιος	(2)	IG II ² 11728	ca. 350	CL
26. καὶ τά	(1)(2)	Def. 95,b 3	350/00 (Wilh., p. 119)	CL
27. Τρίαναν	(2)	IG II ² 1622,214	ca. 342/1	CL
28. βούλωντα καί	(2)	IG II ² 2491,14	ca. 335/25 (SEG 23,94)	Inscr. exam.
29. τᾶς θύραις	(2)	IG II ² 1672,150	329/8	Inscr. exam.
30. ἐν δυοῖν — ἡμέρας	(2)	IG II ² 1673,73	327/6	CL
31. ἐπαινέσα μέν	(2)	IG II ² 373,27	322/1	CL
32. ταῖς οἰκίαις	(2)	IG II ² 2499,6	306/5	Inscr. exam.
33. καὶ παραδῶσει	(2)	IG II ² 1362,16	end 4th c.	CL
34. μὴ [χρῶν]α [τ]ῶι	(2)(3)	IG II ² 2501,15	end 4th c.	CL
35. δοῦνα τόν	(2)	IG II ² 1244,8	end 4th c.?	CL
36. καὶ τά	(1)(2)	Def. 89,a 8	4th c.	CL
37. Λάκωνα	(1)(2)	Def. 14,2	4th/3rd c.	CL
38. καὶ τό	(1)(2)	Def. 160,8	4th/3rd c.	CL
39. Δίατος	(1)(2)	Zie. I 4,4	4th/3rd c.	CL
40. καὶ Γῆ	(1)(2)(3)(5)	Zie. II 13,a 1	4th/3rd c.	CL
41. καὶ Φρεσ-σ[ε]φόνη	(1)(2)(3)(5)	Zie. II 13,a 1	4th/3rd c.	CL
42. καὶ ψυχῆ(ν)	(1)(2)(3)(5)	Zie. II 13,b 4	4th/3rd c.	CL
43. Χα[ρ]ελείδου	(2)(3)	SEG 21,926,1	just after 300	—
44. ξυμβάλλεσθα τῆς	(2)	IG II ² 663,14	after 283/2	Comm.
45. ἐπανεσαι	(2)	IG II ² 1291,16	ca. 250	CL

19. TEPI ed.

37. Norm: <A> corresponding to tentative /a/.
Var.: <AI>.

1. ἀπαρχέν	(7)	IG I ² 456	before 480	Comm.
2. Παιν[διον]ιδι		SEG 18,69,2	384/3	Ph.

3. Ἀναρχαῖος	(Ass)	IG II ² 5649,2	390/65	Comm.
4. ποιήσαντι	(Ass)	IG II ² 1672,172	329/8	Inscr. exam.
5. τῇ(ν) ταχίστην	(1)(3)	CIG 1034,10	4th/3rd c.	CL
6. φρούρια[[ι]]		IG II ² 1299,7	after 236/5	CL
7. Ἀθηνοδώρου	(3)	Delt. 25;1,69,1,2	3rd c.	—

38. Norm: <AI> corresponding to tentative /ai/.
Var.: <AE>.

1. Αἰθρα	(1)	Hopp., Rf. II 208,8	500/475	CL
2. ΕΛΛΕούσιο[ι]	(2)(3)	IG II ² 1927,89	just after 300 (SEG 25,192)	CL

39. Norm: <AI> corresponding to tentative /ai/.
Var.: <AIH>.

1. Νέαι[[η]]χμων		IG II ² 1199,16	ca. 325/4	CL
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40. Norm: <AI> corresponding to tentative /ai/.
Var.: <H>.

1. XAIPE :	(1)(2)	CVA F 14, III	550/25	Spec. ph.
KNTE : EY		He, pl. 88,1,3 A		
2. XAIPE : KN	(1)(2)	CVA F 14, III	550/25	Spec. ph.
III E : EY		He, pl. 88,1,3 B		

1-2. N prob. = H as is often the case, especially in vase inscriptions, but it may have been carelessly written for AI. The instances are accepted because <H> may correspond to /hɛ:/ or /hæ:/ (cf. above, p. 43).

41. Norm: <H>.
Var.: <AI>.

1. Εὐρυμαίδης	(6)	IG II ² 5658,3	ca. 350	CL
2. Εὐρυμαίδης	(6)	Delt. 23:1,135,11	4th c.	Ph.

42. Norm: <AI> corresponding to tentative /ai/.
Var.: <E>.

1. Δικεά(ρ)κες	(1)	CVA GB 4, pl. 39,2 a—b	end 6th c.	CL
2. μά(ο)με κα(ι) ποτέο	(1)	Hopp., Rf. I 410,29	end 6th c.	Comm.

3. μυρίεσι	(6)	IG I ² 94,20	418/7	CL
4. 'Ελέρα	(1)	CVA GB 8, III	end 5th c.	Comm. (Kr., 208)
		Ic, pl. 91,1 a—d		Comm. (Kr., 208)
5. 'Ελέρα	(1)	CVA GB 8, III	end 5th c.	FS
		Ic, pl. 91,1 a—d		
6. Πέδαρχ(ος)	(1)(6)	Def. 29,5	4th/3rd c.	

3. May be = μυρίῃσι or μυρίῃσι (cf. Mhs, pp. 120 f.).
 6. May be = Πεδ(ι)αρχος.

43. Norm: <E> corresponding to tentative /e/.
 Var.: <AI>.

1. Χαιράλα(ς)	(1)	KL 38	530/00	Comm. (Pap., 130)
2. 'Αριστάου	(6)	IG I ² 1063,3	ca. 450 (IG I ¹ s., p. 117,491 ³⁵)	CL

2. 'Αριστέας line 1 and 'Αριστέου line 4 is prob. the same person.

44. Norm: <E>/<EI> corresponding to tentative /e:/.
 Var.: <AI>.

1. χαῖρε καὶ πῖαι	(1)(7)	ABV Paralip. 77,1	550/25	CL
2. χαῖρε καὶ ΠΛΑΙ	(1)(2)(7)	ABV Paralip. 77,2	550/25	Ph.
3. ἐπισκ[ε]υάσαι	(7)	IG II ² 463,52	307/6	CL
4. χαῖρας	(1)	Def. 89,b 5	4th c.	CL

2. Δ = archaic A; nevertheless marked (2).

45. Norm: <E>/<EI> corresponding to tentative /e:/.
 Var.: <AE>.

1. 'Απαρεῖ	(3)(6)	IG II ² 1407,5	384/3	CL
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1. = 'Αφαρεῖ?

46. Norm: <E> corresponding to tentative /e/.
 Var.: <AIE>.

1. Αἰγιατεῖς	(5)	IG II ² 7946,4	end 5th c.	Comm.
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47. Norm: <AI> corresponding to tentative /ai/.
 Var.: <HI>.

1. 'Αλητεῖς		IG II ² 5476,2	after 350	Inscr. exam.
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48. Norm: <AI> corresponding to tentative /ai/.
 Var.: <I>.

1. χαῖρε καὶ πῖαι	(1)(2)	CVA F 14, pl. 87,13—14 B	550/25	Spec. ph.
2. χαῖρε καὶ πῖαι	(1)(2)	CVA F 14, pl. 87,13—14 C	550/25	Spec. ph.
3. <h>ἐφι[σ]τος	(1)(2)	ARV 174,31	530/00	CL
4. ho πῖς	(1)(2)	Hopp., Rf. I 162,11	530/00	Spec. ph.
5. 'Αθενίαις	(1)(2)	ARV 34,9	end 6th c.	CL
6. 'Αθενίαι	(1)(2)	Gerh. AV pl. 114	end 6th c.	FS
7. πῖνε καὶ χαῖρε	(1)(2)	ABV 669 A	6th c.	FS
8. πῖνε καὶ χαῖρε	(1)(2)	ABV 669 B	6th c.	FS
9. Παντίος	(1)(2)	ARV 321,23	500/475	CL
10. Παντί[ος]	(1)(2)	ARV 321,23	500/475	CL
11. Παντίος	(1)(2)	ARV 354,23	500/475	CL
12. IVION	(1)(2)(5)(6)	Hopp., Rf. I 126,30	500/475	CL
13. Λιμνίο[ι]	(2)	ATL II 8,I 97	447/5	Inscr. exam.
14. 'Αθενίαι	(1)(2)	Richt., MM 194,154	ca. 420	CL

12. = Εὐ<α>ίων?

49. Norm: <Y> corresponding to tentative /y(:)/.
 Var.: <I>.

1. Διόνσιος	(1)	ABV 176,2	550/25	Spec. ph.
2. Λισικλῆς	(1) (Ass)	Richt., MM 19,4	ca. 510	Ph.
3. ἐν Τύρινθι	(1) (Met)	CVA GB 4, III	end 6th c.	CL
		Ic, pl. 8,2 a—b		
4. ἡποκίμενος	(1)(6)	ABV 668	blackf.	Spec. ph.
5. δακρίον	(1)	Kr. 119,97	blackf.	Comm.
6. Κρισεῖς	(1)(6)	Kr. 206,191	500/475	Comm.
7. Κρισεύς	(1)(6)	Kr. 206,191	500/475	Comm.
8. [Εὐ]ριπτ<ό>λε- μος	(1)(2)	CVA I 30, pl. 88,1—4	ca. 490/80	Spec. ph.
9. Διονισιγένης	(1) (Ass)	Richt., MM 72,52	ca. 490/80	Ph.

1. = Διόνυσος. The metathesis has no relevance to the instance.
 6/7. Prob. = Χρυσήις and Χρυσεύς respectively.

10. 'Αριστονίμο	(1)	<i>Hesp.</i> 19,383,12,2	483/2? (p. 377)	
11. 'Αριστονίμο	(1)	<i>Hesp.</i> 19,383,12,2	483/2? (p. 377)	Comm.
		(Comm.)		Comm.
12. 'Αριστονίμο	(1)	<i>Hesp.</i> 19,383,12,2	483/2? (p. 377)	Comm.
		(Comm.)		Comm.
13. 'Αριστονίμο	(1)	<i>Hesp.</i> 19,383,12,2	483/2? (p. 377)	Comm.
		(Comm.)		Comm.
14. 'Αριστονίμο	(1)	<i>Hesp.</i> 19,383,12,2	483/2? (p. 377)	Comm.
		(Comm.)		Comm.
15. 'Αριστονίμο	(1)	<i>Hesp.</i> 19,383,12,2	483/2? (p. 377)	Comm.
		(Comm.)		Comm.
16. 'Αριστονίμο	(1)	<i>Hesp.</i> 19,383,12,2	483/2? (p. 377)	Comm.
		(Comm.)		Comm.
17. 'Αριστονίμου	(1)	<i>Hesp.</i> 19,383,13	483/2? (p. 377)	FS
18. 'Αριστονίμο	(1)	<i>Hesp.</i> 19,383,16,2	483/2? (p. 377)	FS
19. Καλλίχσενος <i>ιός</i>	(1)(6)	<i>Hesp.</i> 19,385,17	483/2? (p. 377)	Ph.
20. 'Αρι[στ]ονόμο	(1)(6)	<i>Hesp.</i> 19,386,18,2	483/2? (p. 377)	FS
		[[<i>ιός</i>]](ς)		
21. Χσιφεταόν	(1)	<i>Hesp.</i> 19,388,26,3	483/2? (p. 377)	FS
22. Χσιφε[ταϊδ]να	(1)	<i>Hesp. Suppl.</i>	483/2? (<i>Hesp.</i>	Ph.
		8,394,1,b 2	19, p. 377)	
23. Θρασιμέ(δ)ον	(3)	<i>SEG</i> 16,23,11	465/4	FS
24. Λισίστρατος	(3) (Ass)	<i>SEG</i> 16,23,32	465/4	FS
25. 'Ολισ[σ]εύς	(1)	Kr. 147,131,14	450/20	CL
26. Διόνισος	(1)	Kr. 119,97	redf.	CL
27. 'Ιδιμῆς	(5) (Ass)	<i>Hesp.</i> 7,77,5	447/6 (<i>SEG</i> 5,8)	Ph.
28. δακτύλιον	(Ass)	<i>IG</i> I ¹ 170,24	422/1 (<i>IG</i> I ²	CL
			280)	
29. βιβλίον	(Ass)	<i>IG</i> II ² 1,61	403/2	Inscr. exam.
30. Γκαύκωνος		<i>IG</i> II ² 1425,297	368/7	Inscr. exam.
31. Εὐθίνου		<i>IG</i> II ² 6671,1	after 350	CL
32. ἀποφ[ρ]ι(γών)		<i>IG</i> II ² 1553,5	ca. 330	CL
33. ἀποφι[γ]οῦσα		<i>IG</i> II ² 1553,21	ca. 330	Inscr. exam.
34. Σκιθικοῦ	(5) (Ass)	<i>IG</i> II ² 1569,67	ca. 330	Inscr. exam.
35. Συκιωνίων	(5) (Met)	<i>IG</i> II ² 448,23	323/2	CL
36. τήν δὲ ὕλιν	(6) (Met)	<i>IG</i> II ² 2498,9	321/0	Comm.

10. "The spelling -νίμο at the end of the patronymic occurs on 9 ostraca as against 103 with the regular -νύμο", ed. Only three of the 9 with -νίμο have been published, but the remaining 6 are included here under Nos. 11–16.
19. = ὕός, not υἱός? "The forms υἱός and ὕός both occur in archaic Attic inscriptions... perhaps cannot exclude the possibility that ἰός has been written here for ὕός", ed. Cf. *Mis.* p. 60,4.
20. Prob. ἰός (= ὕός?; cf. No. 19). The last graph was left unfinished: ~; this might be the beginning of an inverted *sigma* ζ, so written No. 19 ἰός, and frequently elsewhere on the Calixenus-ostraca.
36. Prob. = ὕλιν.

37. Κρατίνοντος	(3)	<i>SEG</i> 23,89,39	end 4th c.	CL
38. ΕΥΦΙΔΗΜΟΣ	(3)	<i>SEG</i> 23,89,45	end 4th c.	CL
39. Πολύμηλος	(5)	<i>IG</i> II ² 2638,6	4th c. (My dating)	Comm. (<i>Ath. Mitt.</i> 67,35,37)
40. Εὐπιρίδης	(Ass)	<i>IG</i> II ² 6151,3	4th c.	CL
41. Εὐωνιμεύς	(3)	<i>IG</i> II ¹ 2062,3	4th c. (<i>IG</i> II ² 6180)	CL
42. Εὐτιμίδης	(3) (Ass)	<i>SEG</i> 21,1032	4th c.	—
43. λιποῦσα	(6)	<i>SEG</i> 25,299,3	4th c.	FS
44. ἀνίσ[σ]α	(1)	Rab., 22 (<i>Def.</i> 94,14)	4th c.? (Wilh., p. 110)	Comm.
45. Ζωπιτίδης	(1)(6) (Ass)	Rab., 12 (<i>Def.</i> 6,3)	4th/3rd c.	Comm.
46. Βλέπιρος	(1)(3)	<i>Def.</i> 7,4	4th/3rd c.	CL
47. Σατίρα	(1)(5)	<i>Def.</i> 39,9	4th/3rd c.	Comm.
48. Σατίρας	(1)(5)	<i>Def.</i> 39,12	4th/3rd c.	CL
49. κατ[α]δηνίω	(1)(5)	<i>Def.</i> 75,a 9	4th/3rd c.	CL
50. Σίβιλλα	(Ass)	<i>IG</i> II ² 1534,85	291/0 (<i>SEG</i> 16,118)	CL
51. Φιλακίου		<i>IG</i> II ² 1534,257	291/0 (<i>SEG</i> 16,118)	CL
52. Φιλακίο		<i>IG</i> II ² 1534,261	291/0 (<i>SEG</i> 16,118)	CL
53. Διονισικλῆν	(Ass) (Met)	<i>Hesp.</i> 6,448,3,15	ca. 220 (<i>SEG</i> 25,108)	Ph.
54. Μιτυληναῖος	(5) (Met)	<i>IG</i> II ² 9969,1	3rd c.	Inscr. exam.
55. Μιτυληναῖος	(5) (Met)	<i>IG</i> II ² 9969,2	3rd c.	Inscr. exam.
56. Μιτυληναῖος	(5) (Met)	<i>IG</i> II ² 9969,4	3rd c.	Inscr. exam.

38. = Εὐθύδημος.

42. = Εὐθυμίδης.

43. The interpretation is somewhat uncertain; marked (6).

45. = Ζωφυτίδης?

47. I was corrected into Υ.

50. Norm: <Ι> corresponding to tentative /i/.

Var.: <Υ>.

1. ἐν Τύρινθι	(1) (Met)	<i>CVA</i> GB 4, III	end 6th c.	Spec. ph.
		Ic, pl. 8,2a—b		
2. Λουσικλῆς	(3) (Ass)	<i>SEG</i> 16,23,57	465/4	FS
3. Κυνδύς	(5) (Ass)	<i>ATL</i> II 5,V 23	450/49	CL
4. Φυλίππο		<i>IG</i> II ² 1951,122	406 (<i>SEG</i> 10,356)	Inscr. exam.
5. [τ]μυσυ	(Ass)	<i>IG</i> II ² 43,A 45	378/7	CL
6. τμυσυ	(Ass)	<i>SEG</i> 21,527,26	363/2	Ph.
7. τμυσυ	(Ass)	<i>SEG</i> 21,527,30	363/2	Ph.

8. ἡμισυ	(Ass)	SEG 21,527,37	363/2	
9. ἡμισυ	(Ass)	SEG 21,527,55	363/2	Ph.
10. ἡμισυ	(Ass)	IG II ² 1612,319	356/5	Ph.
11. ἡμισυ	(Ass)	IG II ² 1678,a 22	ca. 350 (SEG 13,49)	CL
				CL
12. [Μυ]ρσύλος	(5)	IG II ² 2405,11	after 350	
13. τὸν ἡμισυν	(Ass)	IG II ² 2492,38	345/4	CL
14. [ἡμ]υσυ	(Ass)	IG II ² 1622,130	ca. 342/1	CL
15. κλινίς	(2)	IG II ² 1517,213	341/0	CL
16. ἡμισυ	(Ass)	IG II ² 412,7	after 336/5	Inscr. exam.
17. ταμὺν	(2)	IG II ² 1672,137	329/8	CL
18. ἡμισυ	(Ass)	IG II ² 1629,572	325/4	Inscr. exam.
19. Συκιωνίων	(5) (Met)	IG II ² 448,23	323/2	CL
20. [ἡμ]υσυ	(Ass)	IG II ² 1632,199	ca. 323/2	CL
21. τὴν δὲ ὅλιν	(6) (Met)	IG II ² 2498,9	321/0	CL
22. [ἡ]μισυ	(Ass)	IG II ² 1476,47	321/0	Comm.
23. Μουνυχιῶνος		IG II ² 471,6	306/5	CL
24. ἡμισυ	(Ass)	IG II ² 2679,7	303/2	CL
25. [Ἀν]τυφάνης	(3)	SEG 23,89,34	end 4th c.	CL
26. Μιτυληναῖος	(5) (Ass)	IG II ² 9967,3	4th c.	CL
27. Διὶ Μυλ[ι]χίωι		SEG 21,790,1	4th/3rd c.	CL
28. Σύρυλα	(1)(5) (Ass)	Def. 8,4	4th/3rd c.	Inscr. exam.
29. ἡμισυ	(Ass)	Hesp. 7,9,2,35	ca. 263/2	FS
30. ΜουνΤχιῶνος	(2)	IG II ² 1302,1	ca. 222/1	Ph.
31. Διονισικλῆν	(Met)	Hesp. 6,448,3,15	ca. 220 (SEG 25,108)	Inscr. exam.
				Ph.
32. Μιτυληναῖος	(5) (Met)	IG II ² 9969,1	3rd c.	Inscr. exam.
33. Μιτυληναῖος	(5) (Met)	IG II ² 9969,2	3rd c.	Inscr. exam.
34. Μιτυληναῖος	(5) (Met)	IG II ² 9969,4	3rd c.	Inscr. exam.

21. Prob. = ὅλιν.

51. Norm: <Υ> corresponding to tentative /y(:)/.
Var.: <ΥΙ>.

1. hṽis	(6)	IG I ² 472,2	ca. 550/45	CL
2. ὑιπέρ	(3)	IG II ² 2504,12	(SEG 21,87) ca. 211/0	CL

1. = hṽs or hṽs or possibly hṽ(ι)ός; hence (6).

52. Norm: <Υ> corresponding to tentative /y/.
Var.: <ΙΥ>.

1. ΠΙΓΙΥΟΖ	(1)	CVA F 1, III	600/575	CL
		Hd, pl. 6,4,11		

1. = Τιτυός.

53. Norm: <Ι> corresponding to tentative /i/.
Var.: <ΥΙ>.

1. Ἡγήσιδος	(1)	Conze pl. 42,124	390/65 (IG II ² 11566)	FS
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54. Norm: <Υ> corresponding to tentative /y/.
Var.: <Ε>.

1. Τενδάρεως	(1)	Hopp., Rf. II 476,1	450/20	FS
2. Εὐθεμένης		IG II ² 11996,3	before 350	CL
3. Πολέστρατος	(3)	IG II ¹ 329,23	256/5 (SEG 21,377)	CL

55. Norm: <Ε> corresponding to tentative /e/.
Var.: <Υ>.

1. ὑπεργυρωμένος	(3)(6)	IG II ² 1652,14	333/2	CL
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1. = ἐπηρ-? Cf. *Hermes* 64,269 f.

56. Norm: <Υ> corresponding to tentative /y:/.
Var.: <ΕΙ>.

1. Ἰλυθείαι		Delt. 25:1,68,23,3	ca. 350	Ph.
2. Εἰλυθείαι		IG II ² 4669,9	4th/3rd c.	Inscr. exam.

57. Norm: <ΕΙ>.
Var.: <Υ>.

1. ἡλύθουα	(1)	ARV 29,19	end 6th c.	Spec. ph.
2. Ἰλυθείαι		Delt. 25:1,68,23,3	ca. 350	Ph.
3. Εἰλυθείαι		IG II ² 4669,9	4th/3rd c.	Inscr. exam.

58. Norm: <Υ> corresponding to tentative /y(:)/.
Var.: <Η>.

1. Κηθήρ		SEG 16,123,28	ca. 350	Ph.
2. Αἰ σανδ[ρ]ον	(1)(2)(5)	Def. 68,b 5	4th/3rd c.	CL

59. Norm: <Y> corresponding to tentative /y/.
Var.: <O>.

1. [E]ύροπτόλεμ[ος]	(1)	Hopp., <i>Rf.</i> I 46,2	530/00		
2. κόλιξ	(1)	SEG 16,231	end 5th/begin. 4th c.	CL	
3. κορ	(1)(7)	IG II ² 2784,6	4th c.? (My dating)	Comm.	FS

3. Prob. schoolboy's tablet.

60. Norm: <O> corresponding to tentative /o/.
Var.: <Y>.

1. Πάτροκλος	(1)	ABV 39,16	600/575		
2. Τρικυρυσίου		IG II ² 7557	ca. 350	CL	
3. Κύν[ωνος]	(3)	IG II ² 7103,1	4th c.	Inscr. exam.	
4. αὐτύν	(1)	Def. 109,2	4th/3rd c.	CL	FS

2. = Τρικυρυσίου.

61. Norm: <OI> corresponding to tentative /oi/[-(+)V].⁷⁵
Var.: <O>.

1. τρίτο<ι>αν	(1)(2)	IG I ² 5,5	ca. 450 (SEG 17,1)	CL	
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⁷⁵ The morphemes {Λευκονοι} and {ποι} /-[front vowel] were excluded. A study of the frequency of the variants <OI> and <O> respectively in the latter morpheme gives the following result:

Period	Instances	
	<OI>	<O>
—500	576	41
500—450	173	22
450—400	46	30
400—350	41	29
350—300	73	61
300—250	30	17
250—200	22	10
Total	961	210

The earliest instances of <O> in this morpheme date from about 600—575.

2. ἀτμετο<ι> ἔσαν	(2)	IG I ¹ 322,a 31	409/8 (IG I ² 372)	CL	
3. πο<ι>ων	(2)	SEG 22,116,9	ca. 330	Inscr. exam.	
4. οἱ — ο — ο<ι> ἐπί	(2)(7)	IG II ² 1277,4	ca. 278/7	CL	

62. Norm: <OI> corresponding to tentative /oi/[-C].
Var.: <O>.

1. ΟΙΕΥ<Σ>	(1)(2)(5)	CVA F 1, III	600/675	CL	
		Hd, pl. 5,6,14			
2. Φο<ι>νιξ	(1)(2)(3)	KM 135,1	530/00	CL	
3. Φο<ι>νιξ	(1)(2)	Hopp., <i>Rf.</i> II 82,26	500/475	FS	
4. το<ι>ν θεοῖν	(2)	SEG 10,6,131	ca. 460	Ph.	
5. [τ]ο<ι>ς παρῶσι	(2)(3)	ATL II D 10,4	453/2	CL	
6. το<ι>ς τυράννοις	(2)(3)	ATL II D 10,33	453/2	CL	
7. Ο<ι>νοπίον	(1)(2)(5)	CVA PO 1, pl. 24	450/20	Ph.	
8. ο<ι>ς	(2)	IG I ¹ 155,2	420/19 (IG I ² 266)	CL	
9. μο<ι>ρα	(2)	IG II ² 12872,2	begin. 4th c.	CL	
10. Ο<ι>ναῖος	(2)	IG II ² 2822,9	349/8	CL	
11. περιπο<ι>κίλον	(2)	IG II ² 1517,131	341/0	CL	
12. σχο<ι>νία	(2)	IG II ² 1624,117	336/0	CL	
13. λίθο<ι>[ς]	(2)	IG II ² 1671,37	ca. 330	CL	
14. τοῖν θεοῖ[ν]	(2)	IG II ² 1672,249	329/8	CL	
15. το<ι>ς					
15. ἱεροποιοῖς —	(2)	IG II ² 1672,251	329/8	CL	
16. ο<ι>ς	(2)	Hesp. 19,236,14,11	4th c. (SEG 16,130(b))	Ph.	

1. = ΟΙ<ν>εύς.

2. OI according to Hopp., *Rf.* II 248; hence marked (3).

63. Norm: <O> /-<α>.
Var.: <OI>.

1. βο[ι]ηθήσαντας		IG II ² 237,23	338/7	CL	
2. ἐγδόγη[ς]		IG II ² 347,2	332/1	CL	
3. μολυβδοχοιεῖ		IG II ² 1670,5	ca. 330	FS	
4. ο[ι]νοχόγη	(Ass)	IG II ² 1480,5	ca. 314/3?	CL	
5. [οι]νο[χό]ιαι	(Ass)	IG II ² 1492,85	305/4	CL	
6. ἐγδόγη[ς]		IG II ² 501,5	302/1	CL	
7. ἀθρόιας		Hesp. 19,236,14,44	4th c. (SEG 16,130 (b))	Ph.	

8. βοιηδρομιῶνος		IG II ² 657,3	287/6		CL
9. βοιηδρο[μι]ῶ[νος]		IG II ² 848,a 2	222/1 (SEG 21,402)		CL
10. οἰνοχόγη	(Ass)	IG II ² 1695,5	3rd c.		CL

64. Norm: <O> corresponding to tentative /o//-(#)/C/.
Var.: <OI>.

1. καλόις	(1)(7)	Richt., MM 22,7	ca. 510/00		
2. καλόις	(1)(7) (Ass)	CVA GB 11, (p. 55) pl. 6,1 I	490/80		CL
3. ho παῖς καλόις	(1)(7) (Ass)	CVA GB 11 (p. 55) pl. 6,1 B	490/80		CL
4. καλόις	(1)(7) (Ass)	CVA USA 13, pl. 10,4—5	480/70		CL
5. Ἀριστοιδίχη	(5)	IG II ² 9119	begin. 4th c.		Comm.
6. τὸι Κηφισοδότου		Hesp. 10,14,1,75	367/6		Ph.
7. προιχοῖδας	(Ass)	IG II ² 1544,45	329/8		CL
8. Θεόφραστος {ο}		IG II ² 1629,7	325/4		CL
9. συμφιλοτι- μούμενοις	(7)	IG II ² 1225,6	ca. 250		CL
6. Acc. neut. sg.					

65. Norm: <OI> corresponding to tentative /oi/.
Var.: <YOI>.

1. Διπνοίας	(1)(6)	KL 35,2	500/475		Comm. (F. dém., pp. 178 f.)
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66. Norm: <Y> corresponding to tentative /y(:)/.
Var.: <OI>.

1. Κολβων	(6)	IG II ² 1635,81	374/3		CL
2. [Π]οιθ[ι]κοῦ	(6)	IG II ² 2407,5	after 350		CL

67. Norm: <OI>.
Var.: <AI>.

1. Προναίαι		IG II ² 1611,195	357/6		Inscr. exam.
2. καὶ ἀδόκιμαι	(7)	(Add. p. 811)			
3. αἰσιται	(3)	IG II ² 1628,206	325/4		CL
		IG II ² 329,41	256/5 (SEG 21,377)		CL

68. Norm: <AI> corresponding to tentative /ai/.
Var.: <OI>.

1. Θυμοιτάδης	(3)(6)	IG II ² 6269,3	after 300		Comm.
2. δ]δέσποτοι	(1)(3)	CIG 1034,13	4th/3rd c.		CL

69. Norm: <OI> corresponding to tentative /oi/.
Var.: <OE>.

1. Κροῖσος	(1)	Hopp., Rf. II 209,16	500/475		CL
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70. Norm: <OI> corresponding to tentative /oi/.
Var.: <EI>.

1. Περιθείδην	(6)	IG II ² 1566,28	ca. 330		CL
2. Ὀρειάδης	(6) (Met)	SEG 13,115,3	4th c.		Comm.
3. στείχῃσω		Tod II 303,204,7	4th c.		Comm.
4. δσα παραγγέλλει		IG II ² 318,8	282/1 (IG II ² 667)		CL

2. = Ἐρειάδης?

4. EI was corrected into OI by the writer.

71. Norm: <EI>.
Var.: <OI>.

1. καταλείψοι	(7)	IG II ² 2493,24	339/8		CL
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72. Norm: <OI> corresponding to tentative /oi/.
Var.: <E>.

1. Φαληρεῖ	(2)(6)	IG II ² 1553,24	ca. 330		Comm. (Mhs, p. 147,10)
2. Φρεαρρεῖ	(1)(2)(6)	Def. 81,4	4th/3rd c.		Comm.

1-2. Loc.

73. Norm: <OI> corresponding to tentative /oi/.
Var.: <I>.

1. hi κολαχρέται	(2)	IG I ² 82,19	421/0		Inscr. exam.
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74. Norm: <OY>.
Var.: <OI>.

1. [τ]όις (3)	ATL II D 10,5	453/2	
hisroπο[ι]ός			
2. 'Αγνοισίο	IG II ² 5273	ca. 360/50	CL
3. Κελ(ε)ύθου (3)	IG II ² 13113,1	4th c.?	Inscr. exam.
4/5. τός — βοηθός (1)	Def. 94,5	4th c.? (Wilh., p. 110)	CL

1 and 4/5. Acc. pl.

75. Norm: <OI> corresponding to tentative /oi/.
Var.: <OY>.

1. HOTTE (2)(3)	IG I ² 79,13	ca. 425 (SEG 21,41)	CL
2. ἀποδομένο έμου (7)	SEG 12,100,23	367/6	
3. τοῦς	IG II ² 1524,98	335/4	Ph.
4. έροπουός	IG II ² 1263,38	300/299	CL

1. May be read ho τε (doubled syngrapheme).
2. OY was corrected into OI by the writer.
3. Dat. sg.

76. Norm: <O> corresponding to tentative /o/.
Var.: <A>.

1. ΤιμΔχσενος (1)(2)	CVA GB 7, III	480/40	CL
2. καλός (1) (Ass)	Ic, pl. 49,1 a—b		
3. ΘεόδΔτος (2)	CVA USA 5,	redf.	Comm.
4. άχυρΔ[ν (2)(3)	pl. 38,1		
5. 'Ονήταρ[ος] (2)	IG II ² 1259,1	313/2	CL
	IG II ² 2501,18	end 4th c.	CL
	SEG 21,408,40	end 3rd c.	Ph.

1 and 3-4. By Δ/Δ the writer may have intended A or Ω, not O; marked (2).

77. Norm: <A> corresponding to tentative /a/.
Var.: <O>.

1. κολός (1) (Ass)	CVA USA 2, III	end 5th c.	CL
2. κατοδ(ω)	Ic, pl. 23,1 a—c		
3. παρεσκευάσοτο (1) (Ass)	Def. 51,3	4th c.	CL
	IG II ² 1299,7	after 236/5	CL

78. Norm: <E> corresponding to tentative /e/.
Var.: <O>.

1. 'Οφολονίδες (Ass)	IG I ² 581,4	before 480	Comm.
2. Τριπτόλομος (1) (Ass)	Kr. 117,95	begin. 4th c.	Comm.
3. Φρεσοφόνην (1)(5) (Ass)	CIG 538,2	380 (Def. 101)	CL
4. χωρίον όν Κρια[(7)	SEG 21,573,5	after 350	Inscr. exam.
5. 'Ορειάδης (6) (Met)	SEG 13,115,3	4th c.	Comm.
6. τόν οικότην (1)	Def. 87,5	4th c.	Comm.
7. τόν οικότην (1)	Def. 87,7	4th c.	Comm.
8. Τηλοκλ[έα]	IG II ² 3212,3	3rd c.	CL

5. = 'Ερειάδης?

79. Norm: <O> corresponding to tentative /o/.
Var.: <E>.

1. Τλεμπόλεμες (1)	ARV 1625,96,52	530/00	CL
	bis		
2. ΔΕΡΑΓΙ (2)	IG II ² 1456,11	after 341/0	CL

2. = δοράτι[α].

80. Norm: <Ω>.
Var.: <E>.

1. Χιρένεια (1)	Hopp., Rf. I	500/475	CL
	422,39		

81. Norm: <EY> corresponding to tentative /eu/.
Var.: <E>.

1. E(υ)βολος (1)(2)(5)	Hopp., Bf.	ca. 570 (Cook, p. 73)	Ph.
	150,2 A		
2. E(υ)ρυ[σ]θ(ε)ύς (1)(2)	Hopp., Rf. II	530/00	Spec. ph.
	260,40		
3. Πελε(υ)ς (1)(2)(5)	CVA D 3, pl.	ca. 510	Ph. (pl. 46,2)
	45,2		
4. E(υ)κράτες (1)(2)(5)	Hopp., Rf. II	end 6th c.	CL
	365,11		
5. Προμεθε(υ)ς (1)(2)	Hopp., Rf. I	500/475	CL
	285,84		
6. 'Ερεχσε(υ)ς (1)(2)	CVA D 12, pl.	ca. 475	FS
	205, 1—2		
7. 'Ολυτε(υ)ς (1)(2)	Kr. 146,131,9	475/50	CL
8. 'Ολυτε(υ)ς (1)(2)	Kr. 192	475/50	Comm.
9. Περσε(υ)ς (1)(2)	ARV 1060,136	450/20	CL

10. 'Αχα<ρ>νε<υ>ς (1)(2)	Ath. Mitt.	443 (Peek, p. 84,160)	CL
11. Λε<υ>κονοιεύς (2)	IG II ² 2818,7	357/6	Comm.
12. Πολυε<υ>κτο[υ] (2)	IG II ² 4374,3	ca. 350	CL
13. Παλληνε<υ>ς (2)	IG II ² 7135	after 350	CL
14. Ε<υ>κο<λ>ινην (1)(2)	Def. 95,b 9	350/00 (Wilh., p. 119)	CL
15. Φ]λυε<υ>ς (2)	IG II ² 215,3	346/5	CL
16. καταπατταλέυω (1)(2)(5)	Zie. I 10,17	ca. 300	CL
17. ΚΕΛΞΘΟΙ (2)(3)	IG II ² 13113,1	4th c.?	CL
18. παρασκε<υ>άζε- ται (1)(2)	Def. 94,9	4th c.?	CL
19. Ε<υ>φραϊος (2)(3)	IG II ² 5310,1	p. 110)	CL
20. Πολυε<υ>κτου (2)(3)	IG II ¹ 329,34	4th/3rd c. (Papa- dém., p. 231)	CL
21. Πολυε<υ>κτου (2)(3)	IG II ¹ 329,35	256/5 (SEG 21,377)	CL
22. ε<υ>νοίας (2)	IG II ² 1291,19	256/5 (SEG 21,377)	CL
23. Διομεε<υ>ς{ς} (2)	IG II ² 5992,2	ca. 250	CL
24. Φ<λ>υε<υ>ς{ς} (2)	IG II ² 7662,3	3rd c.	CL
17. = Κελε<υ>θο<υ>.		3rd c.	CL

82. Norm: <E> corresponding to tentative /e/.
Var.: <EY>.

1. "Ευφιβος (1)(6)	Kr. 138,120	redf.	Comm. (Papa- dém., pp. 21 f.)
2. Πελέυος (1)	Kr. 137,118	475/50	Comm.
3. εϋστευφάνοισι (Ass)	IG II ² 7195,5	after 350	Ph.
4. 'Αριστοτέυλου	SEG 18,106,2	begin. 3rd c.	CL

1 and 3. May be interpreted as ΥΦ for Φ (Var. 117).

83. Norm: <EY> corresponding to tentative /eu/.
Var.: <Y>.

1. Θερε<ε>υταί (1)(2)(6)	Kr. 139	575/50	Comm.
2. Ε<υ>ρυ[σ]θ<ε>ύς (1)(2)	Hopp., Rf. II	530/00	Spec. ph.
3. Τυδ<ε>ύς (1)(2)	260,40		
4. Θερε<ε>ύς (1)(2)	CVA D 3, pl.	510/00	FS
5. Θερε<ε>ύς (1)(2)	36,4		
	Kr. 193 (CIG 7597)	6th/5th c.	CL
	Kr. 193	redf.	CL

6. Θερε<ε>ύς (1)(2)	CVA GB 4, III	450/20	CL
7. Ολυ<ε>ύς (1)(2)	Ic, pl. 23,1 a—b		
8. Νερε<ε>ύς (1)(2)	Hopp., Rf. II	450/20	CL
9. Θηρε<ε>ύς (1)(2)	164,9		
10. Λαμπρε<ε>ύς (2)	CVA D 22, pl.	after 430	FS
11. Μεγαρε<ε>ύς[ς] (2)(5)	116,3—5		
	Kr. 193	end 5th c.	CL
	IG II ² 11911,3	ca. 350	CL
	IG II ² 9310,3	4th c.	CL

84. Norm: <Y> corresponding to tentative /y/.
Var.: <EY>.

1. Εϋθεύμαχος (3) (Ass)	IG II ¹ 329,20	256/5 (SEG 21,377)	CL
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85. Norm: <EY>.
Var.: <EI>.

1. Μελιτεί και	SEG 12,100,30	367/6	Ph.
2. Φηγαιείς	IG II ² 7638,2	after 350	CL

86. Norm: <EY> corresponding to tentative /eu/.
Var.: <EYE>.

1. Μαινεύες (1)(5)	SEG 22,84,g I	end 5th c.	CL
2. έπισκευεάσαι	Extra		
3. Εϋεξείνου	SEG 21,527,54	363/2	Ph.
	IG II ² 10051,2	after 350	CL

87. Norm: <EY>.
Var.: <EYB>.

1. Εϋβαλονος (6)	IG II ² 1534,226	247/6 (SEG 16,118)	CL
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88. Norm: <EY> corresponding to tentative /eu/.
Var.: <IY>.

1. IVION (1)(5)(6)	Hopp., Rf. I	500/475	CL
2. IVAION (1)	126,30		
	KL 132,5	475/50	CL

1. = Εϋ<α>λων?

89. Norm: <EY> corresponding to tentative /eu/.
Var.: <HY>.

1. χαῖρε NV (1)(2)(4)(5) Hopp., Bf. 60,3 550/25
A

1. N prob. = H; marked (2).

FS

90. Norm: <AY> corresponding to tentative /a(:)u/.
Var.: <A>.

1. Γλαύκωνος (1)(2) Delt. 23:2:1, pl. before 445
19 d
2. να<υ>πεγός (2)(3) IG I² 428
3. Να<υ>σιγένης (2) IG II² 1425,228 before 403
4. έα<υ>του (2) IG II² 1533,6 368/7
5. α<υ>τό<ς> (1)(2) Def. 59,6 338/7
4th/3rd c.

Ph.

Inscr. exam.
CL
Comm.

91. Norm: <AY> corresponding to tentative /au/.
Var.: <AO>.

1. Κένταυρον (1) CVA F 8, III end 6th/5th c. CL
He, pl. 57,
12—13,15—16
2. Αὐτοκράτης IG II² 10706 4th/3rd c. CL
3. αὐτέν (1) Def. 90,a 3 4th/3rd c. CL

92. Norm: <O> corresponding to tentative /o/.⁷⁶
Var.: <OY>.

1. καλός (1) CVA F 9, III end 6th/begin. CL
Ic, pl. 39,2,6—8 5th c.
2. δ[[υ]]τι IG I² 108,7 410/09
3. ηου IG I² 301,67 409/8 (SEG 10,233) CL
4. Πουλυχάρης (3)(4) IG II² 12465,2 before 350
5. διδόναι (4) IG II² 207,a 13 349/8
6. δ[[υ]]του (4) IG II² 1183,30 after 340
7. Πουλυδάμας (4) SEG 19,149,57 336/5
8. έπίχρυσους IG II² 1534,68 291/0 (SEG 16,118) CL
Ph.
CL

93. Norm: <Y> corresponding to tentative /y/.
Var.: <OY>.

1. ούπέρ

IG II² 1533,5

338/7

CL

⁷⁶ Instances dated 400—325 are marked (4); cf. above, p. 60.

94. Norm: <O>/<OY> corresponding to tentative /u/.⁷⁷
Var.: <Y>.

1. Δυ<σ>νείκετυ (1)(6) CVA GB 1, III ca. 550 CL
He, pl. 6,2 a—b
2. ηῦτος (1)(2)(4) ABV Paralip. 69 550/25 CL
3. 'Αντιδότυ IG I² 1002,1 ca. 510/00
(SEG 21,180) 483/2? (p. 377) Comm.
4. 'Αριστονόμυ (1) Hesp. 19,384,14,2 Ph.
5. Τ[ει]σιμένυ (2)(4) IG II² 6874,5 ca. 350 CL
6. Κτησ<ι>βίυ (2)(4) IG II² 7504,1 ca. 350 CL
7. τήνδε <ο>ῦν (2) IG II² 1283,15 before 250 Ph.
8. ποιόμενος (2) Hesp. 4,525,39,22 226/5 Ph.

3. The Y was corrected into O by the writer.

95. Norm: <Ω>, (403—200).
Var.: <O>.

1. Ψόλων (1)(4) ARV 1607 end 5th c. CL
2. Σοκράτης (1)(4) Def. 26,2 5th c.? CL
3. Σιμωνίδης (4) IG II² 11653,2 ca. 400 Comm.
4. Μελ[ιτέ]ος (3)(4) IG II² 6832,2 begin. 4th c. CL
5. [κ]τό<μ>ενον (3)(4) IG II² 10780,3 begin. 4th c. CL
6. Πρῶτον (1)(4)(5) Zie. I 18,4 begin. 4th c. CL
(p. 118)
7. Σιδονίων (4)(5) IG II² 141,23 376/60 CL
8. 'Ιον<ι> (4) SEG 21,527,87 363/2 Inscr. exam.
9. τῶν (4) IG II² 204,62 352/1 CL
10. Χολαργέος (4) IG II² 7784,3 before 350 Comm.
11. 'Οαθεν (4) IG II² 7824,2 ca. 350 CL
12. Κολωνήθεν (3)(4) IG II² 1637,6 ca. 350 CL
13. γλῶταν (1)(4)(5) Peek 97,9,2 ca. 350 Ph.
14. γλῶταν (1)(4)(5) Peek 97,9,5 ca. 350 Ph.
15. γλῶταν (1)(4)(5) Peek 97,9,16 ca. 350 Comm.
16. νεοκώρος IG II² 1528,16 after 350 CL
17. Σινωπέος (5) IG II² 10329,3 after 350 CL
18. τῆς δ[ι]αδόσεος IG II² 1749,76 341/0 CL
19. συσσοιβδ[υ] IG II² 1671,7 ca. 330 CL
20. προσ[ηλ]ομένος IG II² 1527,12 327/6 CL

5. JTOAENON edd.

⁷⁷ Instances corresponding to original diphthong are marked (2) throughout. Instances corresponding to "spurious" diphthong are marked (2) from 350 on.
Instances dated 400—325 are marked (4).

21. συντριηράρχο[ν]		IG II ² 1629,649	325/4	CL
22. Ἀρίστονος (3)		IG II ² 1477,6	317/2	CL
23. <ῆ>ρει[πι]ομένα (3)		IG II ² 463,74	307/6	CL
24. Πίθονος		SEG 23,86,176	304/3	CL
25. θαάσει		IG II ² 1362,14	end 4th c.	Ph.
26. Στρατονίδης (3)		SEG 23,89,4	end 4th c.	CL
27. Σοσιγένου (3)		SEG 23,89,4	end 4th c.	CL
28. Σοσιγένης (3)		SEG 23,89,32	end 4th c.	CL
29. Σοσιγένου (3)		SEG 23,89,32	end 4th c.	CL
30. Ἀλοπεκῆθεν (3)		Hesp.	end 4th c.	CL
		40,257,5,1	end 4th c.	CL
31. Μαραθονίου (3)(4)		IG II ² 6767,1	4th c.	—
32. Μν<ῆ>σιφῶν (3)(4)		IG II ² 12168	4th c.	CL
33. Προτίων (4)		IG II ² 12538	4th c.	CL
34. Πρόταρχος (4)		IG II ² 12536/7	4th c.	CL
35. κατ<α>δῶ (1)(4)		Def. 51,3	4th c.	CL
36. Ἀλαιέος (3)(4)		IG II ² 5463,2	4th c.?	CL
37. καταδῶ (1)(4)		Def. 85,2	4th c.?	CL
			4th c.?	Comm.
38. Ἱερῶ (1)(4)		Def. 93,a 5	p. 110	CL
39. ὅς (1)(4)		Def. 94,2	4th c.?	CL
			p. 110	CL
40. πάντων (1)(4)		Def. 140,3	4th c.?	CL
			p. 110	CL
41. κατα[δη]νύο (1)(4)(5)		Def. 75,b 6	4th/3rd c.	CL
42. Ἀπαλλό[ν]ιος (1)(3)(4)		Def. 117,1	4th/3rd c.	FS
43. Δράκων (5)		IG II ² 1956,87	ca. 300	CL
44. Κνῶσος (5)		IG II ² 1956,105	ca. 300	CL
45. Ἑρμῶναξ (5)		IG II ² 1956,135	ca. 300	CL
46. Μοσχίον (3)(5)		IG II ² 1956,148	ca. 300	CL
47. Λεόφιλος (3)		IG II ² 1927,50	just after 300	CL
			(SEG 25,192)	CL
48. Ἄννωνος		IG II ² 7572,2	after 300	CL
49. τῶν		Hesp.	283/2	Ph.
		4,562,40,10		Ph.
50. Τίμων		Hesp. Suppl.		CL
		1,59,17,7	ca. 260/40	CL
51. <Μ>νή<σ>ο<ν>ος (3)		IG II ¹ 329,26	256/5 (SEG 21,377)	CL
52. Ὀνησιφῶντος (3)		IG II ¹ 329,22	256/5 (SEG 21,377)	CL
			ca. 250	Inscr. exam.
53. ἀπέδοκα[ν]		IG II ² 12141,8	after 236/5	CL
54. τῶν ἐγγόνων (5)		IG II ² 1299,11		CL

35 and 37. O was corrected into Ω.
 38. Fem. nom. (proper noun).
 51. ΝΙΝΗΙΟΠΙΟΣ ed.

55. παρηνγελέτοσαν		IG II ² 1299,40	after 236/5	CL
56. ὀρθῶς		IG II ² 1299,48	after 236/5	CL
57. Σ<κίροφ>ο- (3)		IG II ¹ 620,1	end 3rd c. (IG II ² 1317)	CL
58. θιασοτῶν (3)		IG II ¹ 620,4	end 3rd c. (IG II ² 1317)	CL
59. δῶρον (3)		IG II ¹ 620,9	end 3rd c. (IG II ² 1317)	CL
60. Σόστρατος		IG II ² 4279	end 3rd c.?	CL
61. Γνόμη		IG II ² 11024	3rd c.	CL
96. Norm: <Ο> corresponding to tentative /o/. Var.: <Ω>.				
1. Μελιεύς καλῶς (1)(4)(5)		CVA PO 1, III	530/00	CL
		Ic, pl. 17,1 a—c		
2. κἀνθαρως (1)(4)		Kr. 107	6th/5th c.	CL
3. Τιμᾶχσενος (1)(2)(4)		ARV 530,20	475/50	CL
4. Κλενίας καλῶς (1)(4)		ARV 530,21	475/50	CL
5/6. Ἀλκίμαχως (1)(4)		ARV 631	475/50	CL
		καλῶς		
7/8. Διώνυσως (1)(4)		Hopp., Rf. II	475/50	CL
		467,18		
9/10. Ἀλκίμαχως (1)(4)		CVA GB 7, III	475/50	CL
		Ic, pl. 58,3 a—b		
11. Κυμω[δ]όχη (1)(4)		Kr. 201,184,5	redf.	CL
12. Κλενίας καλῶς (1)(4)		ARV 988,12	450/20	CL
13. Κλινίας καλῶς (1)(4)		ARV 988,13	450/20	CL
14. καλῶς (1)(4)		ARV 991,61	450/20	CL
15. Κλινίας καλῶς (1)(4)		ARV 1002,4	450/20	CL
16. Κυμοδῶκε (1)(4)		Hopp., Rf. I	450/20	CL
		346,4		
17. Δίφιλος (1)(4)		Kr. 106,88	450/20	CL
18. Οινώμακος (1)(4)		Kr. 107	450/20	CL
19. Ὀλυσσεύς (1)(4)		Kr. 107	450/20	CL
20. Ὀλυσσεύς (1)(4)		Kr. 147,131,15	450/20	CL
21. Περσώφατα (1)(4)(5)		Pfuhl, fig. 556	450/20	FS
22. μνημεῖων (4)(6)		IG I ² 1037,2	before 430 (IG I ¹ s., p. 114,491 ⁸)	Comm.
23. Ἐνκέλαδως (1)(4)		Hopp., Rf. II	end 5th c.	CL
		449,2		
24. Ἑρως καλῶς (1)(4)(7)		KL 137	end 5th c.	CL
25. Φρεσσεφῶνες (1)(4)(5)		Def. 102,a 4	begin. 4th c.	FS
			(Wilh., p. 112)	

3. Δ prob. = Ω; marked (2).

22. Marked (6), although Koehler's interpretation is most probably correct.

26. Ὀλυμπων	(1)(4)(5)	Zie. I 18,2		
27. Κλεωμέδων	(3)(4)	IG II ² 1138,23	begin. 4th c. (p. 118)	CL
28. Μαραθώνιος	(4)	IG II ² 1635,10	390/80 (SEG 16,105)	CL
29. ἔχων	(4)	IG II ² 1424a,282	374/3	CL
30. Ἀπ[υ]λλόδ[υ]	(3)(4)	IG II ² 1690,1	369/8	CL
31. Εὐδότης[υ]	(4)	IG II ² 1583,21	before 350	Inscr. exam.
32. Κώθρος	(4)(5)	IG II ² 7464,1	ca. 350	CL
33. νεοκώρ[ος]		IG II ² 1528,16	ca. 350	CL
34. Εὐρ[υ]γώνη	(3)(6)	IG II ² 7046,1	after 350	CL
35. ὦπας		SEG 16,51,2	after 350	CL
36. ὦπο[ς]		SEG 16,51,15	ca. 340/39	CL
37. περυσινώ[ς]		IG II ² 1183,26	ca. 340/39	Ph.
38. Ἀθ[ηναίων]	(7)	IG II ² 343,12	after 340	Ph.
αὐτῶν			ca. 332/1	Inscr. exam.
39. Φωξίλας	(3)	IG II ² 2411,16	ca. 330	CL
40. Ἀρτίνων	(6)	IG II ² 1558,48	ca. 330	CL
41. εἰς Σάμων		IG II ² 1628,109	325/4	CL
42. ὦ {ο}οἰκιστής		IG II ² 1629,161	325/4	CL
43. δικαζ[ό]μενων	(1)(5)	Def. 103,a 10	323/2 (Wilh., pp. 122—125)	Comm.
44. Θουδῶτου		SEG 21,591,29	ca. 321	Ph.
45. Θεόδωτος	(2)	IG II ² 1259,1	313/2	CL
46. Πυκνω[ψιδῶνος]		Hesp. 19,282,34,11	307/6	Ph.
47. ἄχυρ[υ]	(2)(3)	IG II ² 2501,18	end 4th c.	CL
48. Ἀπολώδωρο[ς]	(4)	IG II ² 6347,1	4th c.	CL
49. Διο[γείτ]ωνος	(4)	IG II ² 5575,2	4th c.?	CL
50. Διώνκλας	(1)(4)(5)	Def. 8,2	4th/3rd c.	FS
51. ἐκείνων	(1)(4)	Def. 80,9	4th/3rd c.	CL
52. Ἀπολλό[ν]ιος	(1)(4)	Def. 117,1	4th/3rd c.	FS
53. Νεωστράτου	(3)	IG II ² 6221,2	after 300	CL
54. αὐτῶν ἑκαστων	(7)	SEG 14,65,39	271/0	Ph.
55. λαχῶν τῶν ἐν<ι>αυτό[ν]	(3)(7)	IG II ² 329,11	256/5 (SEG 21,377)	CL
56. ἀγαθῶν	(3)(7)	IG II ² 329,12	256/5 (SEG 21,377)	CL
57. οἰκονόμηκεν	(3)	IG II ² 329,16	256/5 (SEG 21,377)	CL
58. Ἀντιγώνωι		IG II ² 1225,3	ca. 250	CL

29. Neut.
34. Marked (6), cf. SEG 13,118.
43. Ω was corrected into O.
45. Δ prob. = Ω; marked (2).
47. Δ prob. = Ω; marked (2).
50. Ω was corrected into O.

59. Ἀπολλόδωτος	(2)	Hesp. 38,425,2,81	220/19	Comm.
60. Ὀνήταρος		SEG 21,408,40	end 3rd c.	Ph.
61. Τήλεφως		IG II ² 8801,1	3rd c.	Comm.
60. Δ prob. = Ω; marked (2).				
97. Norm: <Ω>. Var.: <ΟΩ>.				
1. Διονυσιοδώρου	(5)	IG II ² 10379,2	3rd c.	CL
98. Norm: <ΩΙ>, (403—200). Var.: <ΟΙ>.				
1. Φιλοδήμοι	(4)	IG II ² 2654,9	363/2	CL
2. Ἀσκληπιῶν	(4)(5)	IG II ² 4366,2	before 350	CL
3/4. ἐν τῷ δήμῳ	(4)(5)	IG II ² 1186,5	ca. 350	CL
5. τῷ Διονύσῳ	(4)(5)	IG II ² 1186,14	ca. 350	CL
6. τραγοῖδῳ	(4)(5)	IG II ² 1186,20	ca. 350	CL
7. κωμοιδίᾳ<ι>	(4)	IG II ² 11387,5	ca. 350	CL
8. Ἀφιδναῖοι		IG II ² 2496,12	after 350	CL
9. τρώπῳ ὁτιοῦν		IG II ² 2496,27	after 350	CL
10. ἐν Σκύροι	(5)	IG II ² 1576,45	ca. 330	CL
11. οἰκοδομημένοι	(6)	IG II ² 1627,398	330/29	Comm. (Mhs, p. 172,16)
12. οἰκοδομημένοι	(6)	IG II ² 1628,552	326/5	Comm. (Mhs, p. 172,16)
13. οἰκοδομημένοι	(6)	IG II ² 1631,252	323/2	Comm. (Mhs, p. 172,16)
14. οἰκοδομ[η]μένοι	(6)	IG II ² 463,59	307/6	Comm. (Mhs, p. 172,16)
15. ἐν τῷ ἱερῷ		IG II ² 1261,51	302/299	CL
16. Ζοῖλος	(5)	IG II ² 1956,123	ca. 300	CL
17/18. τῷ δήμῳ		IG II ² 530,7	end 4th c.	CL
19. χ[ρ]υσθῇ		SEG 19,69,7	begin. 3rd c.	CL
20. οἰκονόμηκεν	(6)	IG II ² 1284,26	ca. 250	Inscr. exam.
21. οἰκονομ[ή]σασιν	(5)(6)	IG II ² 1299,48	after 236/5	CL
2-6. Marked (5); cf. Mhs, p. 66,11.				
21. Marked (5); cf. Mhs, p. 66,11.				
99. Norm: <ΟΙ> corresponding to tentative /oi/. Var.: <ΩΙ>.				
1. τ[ο]ῖ κωνοῖ	(4)	IG I ² 189,10	ca. 460	CL
2. χρηστῶι πιστωί	(4)(7)	IG II ² 5552a,6	ca. 360	CL

3. στεφανωὶ ὁ δῆμος (4)(5)
4. τωῖς

IG II² 1187,12
Hesp. 19,226,13,87 ca. 350
IG II² 1672,160 ca. 350/44
IG II² 839,20 329/8
221/0

CL
Ph.Inscr. exam.
CL

3. Marked (5); cf. Mhs, p. 66,11.

100. Norm: <ΩΙ>.
Var.: <ΟΥ>.

1. ἐν τῷ ἱεροῦ
2. ἐφ' οὗ (6)

IG II² 1258,24 324/3
IG II² 1486,2 307/6

CL
CL

2. Lines 5, 10, 12, and 14 ἐφ' οὗ; marked (6).

101. Norm: <Ο>/<ΟΥ> corresponding to tentative /u:/.
Var.: <Ω>.

1. ἡε[ρ]μῶ (1)(4)
2. [Ἀριστο]νύμω (1)(4)
3. Νεοκλέω (1)(4)

Graef II 1042 ca. 500
Hesp. 19,384,15,2 483/2? (p. 377)
Hesp. 5,40, fig. 482

Ph.
FS
Ph.

4. Νεοκλέω (1)(4)

Hesp. 7,240,A.O. 482

Ph.

5. Νεοκλέω (1)(4)

Hesp. 7,240,A.O. 482

Ph.

6. Νεοκλέω (1)(4)

Hesp. 7,240,A.O. 482

Ph.

7. Νεοκλέω (1)(4)

Hesp. 7,240,A.O. 482

Ph.

8. Λευκολοφίδω (4)

IG I² 559

CL

9. [Μενεκλ]είδω (1)(4)

Peek 64,75

FS

10. καλλικόμω (4)

IG I² 821,2

Comm.

11. Μιλ[ι]τιάδω (1)(3)(4)

Peek 58,45

Ph.

12. Μιλτιάδω (1)(4)

Peek 58,46

FS

13. Μιλτιάδω (1)(4)

Peek 59,47

Ph.

14. [Μιλ]τιά[δ]ω (1)(3)(4)

Peek 59,48

FS

15. [Μιλτι]άδω (1)(4)

Peek 59,49

FS

16. θεῶ (4)

SEG 14,3,8

CL

17. Θωκυδίδε[ς] (1)(4)

Ath. Mitt.

CL

18. Μελεσίω (1)(4)

40,10,12,1

CL

19. [Μ]ελεσίω (1)(4)

Ath. Mitt.

CL

40,10,12,2

Peek 84,160,2

Ph.

20. Μικυλίω (4)(5)

IG II² 1951,129 406 (SEG
10,356)

CL

21. Σκιωναίω (4)(5)(6)

IG II² 10366,3

CL

22. ἐκένω (1)(4)(5)

Def. 107,a 4

CL

23. τοῦ μὲν
Ἡρακλέως

Hesp. 7,9,2,8

CL

21. May be dual; marked (6).

102. Norm: <Ο>/<ΟΥ> corresponding to tentative /u:/.
Var.: <ΟΩ>.

1. χορίω (4)

IG I² 661,3

before 445

CL

103. Norm: <Ω>.
Var.: <Α>. (Not all instances.)

1. Σουνιείας
2. τᾶν
3. δραχμᾶν
4. ἀπαντᾶσιν (3)
5. στεφανᾶσα<ι> (3)

IG II² 7434,3

ca. 350

Inscr. exam.

IG II² 1629,1046

ca. 325/4

Inscr. exam.

IG II² 2498,5

321/0

CL

IG II² 2501,7

end 4th c.

CL

IG II¹ 620,5

end 3rd c. (IG
II² 1317)

CL

104. Norm: <Α> corresponding to tentative /a/.
Var.: <Ω>.

1. κώλω (3)

IG II² 1611,57

357/6

Inscr. exam.

105. Norm: <ΩΙ>.
Var.: <ΑΙ>. (Not all instances.)

1. ἱερᾶι (3)

IG II² 2501,16

end 4th c.

CL

106. Norm: <ΩΙ> (OA <ΟΙ>).
Var.: <Ω> (OA <Ο>).

1. σοῦ (2)
2. Ἀχελῷ[ο]ς (1)(2)(3)
3. ἐν τῷ πρόνεοι (2)
4. ΔΗ Μορίω τρ[(2)(3)

IG I² 590,2

6th c.?

Comm.

Wer. 6/7

redf.

CL

IG I² 253,267

411/0

Inscr. exam.

IG I² 844/5,B 9

410/05 (SEG
15,14)

CL

5. Νομενίο (2)
Μαρχθονίοι

IG I² 304,67

407/6

CL

6. Κηφισὸν ἱερὸν	(2)(6)	IG II ² 4548,1	just after 400	Comm.
7. Κῶος	(2)(5)	IG II ² 9143	begin. 4th c.	CL
8. Κῶος	(2)(5)	IG II ² 9143	begin. 4th c.	CL
9. τῶ θιάσῳ	(2)	IG II ² 1237,76	396/5	CL
10. Ἀχελώϊ	(2)	SEG 21,541,II	375/50	CL
		24		Ph.
11. Δωροθέω	(2)	IG II ² 2654,7	363/2	CL
Ἰπποτομ[ά]δε<ι>			before 350	
12. Δι Μιλιχίω	(2)	IG II ² 4569		Comm. (P)
				dém., p. 20
13. ἐφ' ὧτε	(2)	CIG 93,4		Comm.
			345/4 (IG II ²	
14. λῶον	(2)	IG II ² 333,c 25	2492)	
15. ἐν τῷ παρ[	(2)	IG II ² 347,14	335/4	CL
16. ἐν Κηρῶ καί	(1)(2)	Def. 55,a 16	332/1	CL
			prob. 325/4	Comm. (W)
17. αὐτῶ	(2)	SEG 21,307,43	(Wilh., pp. 107 f.)	p. 108)
ἱε[ροποιοῖς]			320/19	
18. ἐτέρῳ [ἄ]	(2)(3)	IG II ² 2724,10	319/8	CL
19. Ῥαμνοσίω	(2)	Hesp.	4th c.	—
		32,43,52,5		Ph.
20. ἱατρῶ	(2)(3)(5)	IG II ² 9052,9	begin. 3rd c.	—

6. May be gen. or dat.; marked (6).

107. Norm: <Ω> (OA <O>).
Var.: <ΩΙ> (OA <OI>).

1. μετ' ἐκένων	(1)(5)	SEG 21,1093,7	begin. 4th c.	Ph.
2. [Φιλ]ωινίδης		IG II ² 2383,11	360/50	CL
3. Ἀμφιμῶ		IG II ² 10652,1	before 350	Comm.
4. δι]ασεισμένους		IG II ² 435,11	after 336/5	CL
5. ἔ]σωνισεν	(3)	IG II ² 356,33	327/6	—
6. διέσωνισεν		IG II ² 550,15	307/6 (SEG 19,59)	CL
			303/2	Inscr. exam.
7. συνδιέσωνισεν		IG II ² 493,21	264/3 or just	Ph.
8. διέσωνισε		SEG 24,154,7	after	
			238/7 or just	
9. διέσωνισε		SEG 24,156,a 2	after?	

3. Fem. nom.

108. Norm: <ΩΙ>.
Var.: <ΩΠ>.

1. Ζωίλος	(1)	ARV 7,7	6th/5th c.	CL
2. τῶ Ζωίλο	(5)	SEG 16,16,1	begin. 5th c.? (SEG 21,206)	Ph.

109. Norm: <Θ> /- {<P>} or {<P>} /- {<Λ>} or {<Λ>} /-
Var.: <α>.

1. ἡρέπεια	(1)	Cook 70, fig. 10	ca. 605	FS
2. ἡρακελῆς	(1)	ABV 269,41	530/20	CL
3. καλιός	(1)	ARV 101	530/00	CL
4. Τέροπον	(1)	Kr. 125,107	530/00	Comm.
5. κάρατα	(1)	Richt., MM 20,5	ca. 510	CL
6. κ[ά]ρατα	(1)	Richt., MM 20,5	ca. 510	CL
7. ἡερεμῆς	(1)	Kr. 125,107	blackf.	Comm.
8. [Γο]ρογῶς	(1)	Kr. 126,107	blackf.	Comm.
κεφαλέ				
9. Μιλιτιάδω	(1)	Peek 58,45,2	461 (p. 62)	Ph.
10. Ἐπίδορομος	(1)	Kr. 125,107	redf.	Comm.
11. ἄραχοντος		Arch. Eph. 1883,135,12,4	4th c.	CL
		Def. 90,a 3	4th/3rd c.	CL
12. Ἐριμῆν	(1)			

110. Norm: <Θ> /- <X>.
Var.: <α>.

1. Ἐαχσεκίας	(1)	Kr. 126,107	560/30	Comm.
2. ἡσαχύλος	(1)	Kr. 126,107	530/00	Comm.

111. Norm: <α> corresponding to tentative /V:/.
Var.: <αα>.

1. <ἐ>ποίησεν	(1)	ABV 175,18	550/25	CL
2. Νικοσθένης	(1)	CVA GB 5, III	530/00	CL
		He, pl. 72,2 a—b		
3. Μέμνοον	(1)	ARV 62,83	530/00	CL
4. Ἀπόλλοον	(1)	Graef II 211	530/00	Ph.
5. Αἶσας	(1)	CVA D 3, pl. 36,4	510/00	FS
6. Ἀπόλλοον	(1)	Hopp., Rf. I 123,15 bis	500/475	CL

112. Norm: <α> corresponding to tentative /V/.

Var.: <αα>.

1. Νερυνύς	(1)	Kr. 137, n. 1	530/20	
2. ἐποόεσεν	(1)	KM 109,7	530/00	
3. Ἀχιλευνύς	(1)	Hopp., <i>Rf.</i> I 402,13	end 6th c.	CL
4. κααλός	(1)	CVA I 37, pl. 32	ca. 470	CL
5. Ἀκίς	(5)	IG II ² 10618	365/40	CL
6. χωρίο[ν]		SEG 24,151,11	ca. 350	Inscr. exam.
7. εἰπ[[ε]]εν		SEG 24,153,1	ca. 350	Inscr. exam.
8. Λαμπρεεύς		SEG 23,135,3	4th c.	Comm.
9. Ἰαάχου		IG II ² 847,21	ca. 215/4	CL

113. Norm: <α(α)> corresponding to tentative $\left\{ \begin{array}{l} /V(:)/ \\ /V:/ \end{array} \right\}^{78}$

Var.: <Θ>.

1. ἐπ<οί>εσεν	(1)(2)	ABV 170,1	550/25	
2. τονδ<ί> ναίχι	(1)(2)	ABV Paralip. 70	550/25	
3. Καλιρ<ό>ε	(1)(2)	CVA GB 8, III	530/00	CL
		He, pl. 88,3		CL
4. καλ<ό>ς	(1)(2)	ARV 36,1	end 6th c.	Ph.
5. Χαιρ<ί>ας	(1)(2)	ARV 176,1	500/475	CL
6. hi]πποδ<ά>μα[ς]	(1)(2)	Hopp., <i>Rf.</i> I 254,2	500/475	CL
7. Φαλ<ά>νθ[ο]	(1)(2)	Hesp. Suppl. 8,400,14 b,2	begin. 5th c.	Comm.
8. [Εύ]ριπτ<ό>-λεμος	(1)(2)	CVA I 30, pl. 88,1-4	ca. 490/80	FS
9. Καλλ<ί>-χ(σενος)	(1)(2)	Hesp. 19,381,1	483/2? (p. 377)	Spec. ph.
10. Καλλ<ί>σκενος	(1)(2)	Hesp. 19,385,17	483/2? (p. 377)	FS
11. ἀν<έ>θεκεν	(2)	IG I ² 443	before 480	Ph.
12. Σοφρον<ί>σκο	(2)	IG I ² 647,2	before 480	Inscr. exam.
13. ἐπεύχεται <έ>ναι	(2)	IG I ² 663,2	before 480	Comm.
14. ἐπ<οί>εσεν	(1)(2)	CVA GB 3, pl. 2,1	ca. 480	CL
15. <hε>ρσε	(1)(2)	CVA D 12, pl. 205,1-2	ca. 475	CL
16. Ἀ<λ>εξ<ά>νδρε	(1)(2)(5)	CVA GB 5, III	475/50	FS
		Ic, pl. 34,2 a-b		CL
17. Ἀρχ<ί>νος	(1)(2)	ARV 939,1	475/50	CL
18. Ἰππολ<ύ>τη	(1)(2)	Hopp., <i>Rf.</i> II 176,2	475/50	CL

⁷⁸ All autographemes corresponding to accentuated vowels (even diphthongs) are compared with the autographemes corresponding to one of the components of a diphthong has been treated above under the respective variations.

19. Ἀπ<ό>λ[λον]	(1)(2)	Hopp., <i>Rf.</i> II 469,28	475/50	CL
20. καλ<ό>ς	(1)(2)	Kr. 188	475/50	CL
21. Ἀπ<ό>λλο<ν>	(1)(2)	CVA GB 3, pl. 35,1-2	ca. 460/50	CL
22. Ἐλαί<έ>α	(2)	IG I ² 201,28	444/3	CL
23. χσυγγρ<ά>φσει	(2)	IG I ² 81,16	421/0	Ph.
24. Σιμ<ί>ο	(2)	IG I ² 374,9	408/6	CL
25. ἐνθ<ά>δε	(2)	SEG 19,44,3	end 5th c.	Ph.
26. Δει<ά>νειρα	(1)(2)	KM 185,2	end 5th c.	CL
27. Παν<ί>ς	(1)(2)	Hesp. 17,137	400/350 (p. 140)	Ph.
28. δ<έ> κρεμαστών	(2)	IG II ² 1612,368	356/5	CL
29. Καλλ<ί>νος	(2)(6)	IG II ² 13058	before 350	CL
30. ξυλ<ί>νων	(2)	IG II ² 1620,20	after 349/8	CL
31. Ἰππαρχ<ί>δης	(2)	SEG 19,149,271	336/5	Ph.
32. Ἐλαβον	(2)	IG II ² 1623,293	333/2	CL
		<ά>σκευον		
33. Π<ί>λιννα	(2)	IG II ² 1553,18	ca. 330	Comm.
34. [Κη]φισ<ί>ου	(2)(3)(6)	IG II ² 2411,2	ca. 330	CL
35. ἀργυρ<ί>ου	(2)	IG II ² 1672,21	329/8	CL
36. Καλ<ί>στιον	(2)	IG II ² 7643,1	after 317/6	CL
37. Τεισαμεν<ό>ς	(2)(3)	IG II ² 2413,14	304/3 (SEG 23,86)	CL
38. ἐγραμμ<ά>τευεν	(2)	IG II ² 502,3	302/1	CL
39. γλ<ω>τταγ και	(1)(2)(5)	Zie. I 10,2	ca. 300	CL
40. Πανφ<ί>λου	(1)(2)	Def. 63,2	4th/3rd c.	CL
41. Θεοδ<ό>την	(1)(2)	Def. 90,a 1	4th/3rd c.	CL
42. τόν κ<ά>τοχον	(1)(2)	Def. 90,a 2	4th/3rd c.	CL
43. ποτ<ό>ν	(1)(2)(3)	CIG 1034,10	4th/3rd c.	CL
44. [Δε]ιν<ί>ου	(2)(3)(6)	IG II ² 1927,27	just after 300 (SEG 25,192)	CL

114. Norm: <α> corresponding to tentative /V(:)/.

Var.: <Θ>.

1. Ο<λ>οπε-τίον<ο>ς	(1)(2)(5)	Jeff. 401, pl. 2,10a	end 7th c./ca. 550	FS
2. Ἀνφισχάρ<ε>ς	(2)	Jeff. 401, pl. 3,20,2	ca. 560/50?	Ph.
3. <Ἐ>χσεκί<κ>ας	(1)(2)	ABV 147,3	560/30	CL
4. <Ἐ>χσεκίας	(1)(2)	ABV 147,3	560/30	CL
5. Ἀθένεθ<ε>ν	(1)(2)	CVA GB 1, III	ca. 550?	Spec. ph.
		He, pl. 1,1 a-b		
6. ἐποί<ε>σεν	(1)(2)	CVA DK 3, pl. 117,4 a-b	550/25	Spec. ph.
7. κ<α>λός	(1)(2)	CVA E 1, III	550/25	FS
		He, pl. 8,2		

8. Ἀρχ(ι)κλῆς	(1)(2)	ABV 160,1		
9. Εὐχ(ε)ρος	(1)(2)	ABV 162,1	550/25	
10. Εὐχερ(ο)ς	(1)(2)	ABV 162,3	550/25	
11. [ἐ]ποίησ(ε)ν	(1)(2)	ABV 188,1	550/25	
12. [ἐ]ποίησ(ε)ν	(1)(2)	ABV 188,1	550/25	
13. [ἐ]ποίησ(ε)ν	(1)(2)	ABV 188,2	550/25	
14. [ἐ]ποίησ(ε)ν	(1)(2)	ABV 188,2	550/25	
15. π[ρὸ]π(ι)θι	(1)(2)	Graef I 1751	550/25	
16. ἡεράσ(ι)πος	(1)(2)(6)	ABV 262,46	550/25	
17. ἐποίησ(ε)ν	(1)(2)	ABV 314	530/20	
18. <Ε>ρμῆς	(1)(2)	CVA GB 5, III	530/00	
		Ic, pl. 37,1 a—b		
19. Φιντί(α)ς	(1)(2)	CVA I 25, III I,	530/00	
		pl. 1,1—3		
20. Ἀθ(ε)νάα	(1)(2)	CVA I 25, III I,	530/00	
		pl. 2,1—2; pl.		
		3,1—3		
21. ἐπο[ί]εσ(ε)ν	(1)(2)	ABV 236,7	530/00	
22. ἐποίησ(ε)ν	(1)(2)	ARV 112,1	530/00	
23. Πάν(φ)αι(ο)ς	(1)(2)	ARV 130,36	530/00	
24. ἐποί(ε)σεν	(1)(2)	ARV 1531,3	530/00	
25. Ἀχ(ι)λέος	(1)(2)	CVA D 12, pl.	ca. 520/10	
		153,1—2		
26. Ποντ(ο)μέδα	(1)(2)(5)	CVA D 3, pl.	ca. 510	
		45,2		
27. ἐποίησ(ε)ν	(1)(2)	ARV 28,17	end 6th c.	
28. μά(ο)με	(1)(2)	CVA F 8, III	end 6th c.	
		Ic, pl. 27,8—9		
29. Λέ(α)Υ(ρ)ος	(1)(2)	ARV 1594,49	end 6th c.	
30. ἡο π(ο)λίο	(1)(2)	Hopp., Rf. I	end 6th c.	
		436,4		
31. ἀνα]τέθ(ε)κεν	(1)(2)	IG I ² 406	6th c.	
32. Δαμ(α)σίδαι	(1)(2)	IG I ² 406	6th c.	
33. Ἀθένεθ(ε)ν	(1)(2)	Kr. 124	6th c.	
34. Κλε(ο)πτολέμε	(1)(2)	Kr. 125,106	blackf.	
35. λῦσ(ο)ν	(1)(2)	ABV Paralip.	6th/5th c.	
		183,22 bis		
36. ἀνέθ(ε)κε	(1)(2)	Graef II 1362	6th/5th c.	
37. ἡι(ε)ρόν	(1)(2)	Graef II 1378	6th/5th c.	
38. ἡι(ε)ρ[ό]ν	(1)(2)	Graef II 1396	6th/5th c.	
39. ἀπ(α)ρχέν	(2)	IG I ² 689,2	ca. 500 (SEG	
			15,31)	
40. Μελάνθι(ο)ς	(1)(2)(6)	Hesp. Suppl.	begin. 5th c.	
		2, 121, B 47	(Hesp. Suppl.	
			8,400,14)	

28. = μάομαι.

40. Marked (6); cf. Hesp. Suppl. 8, 400, n. 20.

41. ἐγγραφ(ε)ν	(1)(2)	ARV 432,52	500/475	
42. Ἀρ(ι)στονύμο	(1)(2)	Hesp. 19,383,8,2	483/2? (p. 377)	CL
43. Θεμισθ(ο)κλῆς	(1)(2)	Hesp. 7,232, fig.	482 (p. 242)	FS
		62, A.O. 136		Ph.
44. Θεμ(ι)στοκλέο	(1)(2)	Hesp. 7,238, I,	482 (p. 242)	
		A.O. 146		CL
45. Ἀλέχσ(α)νδρος	(1)(2)	CVA D 21, pl.	490/80	
		84,1—2		FS
46. ἀνέθ(ε)κεν	(2)	IG I ² 729	before 480	
47. Ἀππ(ο)λόδο-	(1)(2)	CVA I 28, III I,	ca. 470	Inscr. exam.
ρος		pl. 23,1		CL
48. Δ(ε)μότιμος	(2)(3)	SEG 16,23,40	465/4	
49. Μ(ι)λτιάδο	(1)(2)	Peek 60,54	461 (p. 62)	FS
50. Μ(ι)λτιάδο	(1)(2)	Peek 61,60	461 (p. 62)	Ph.
51. Μ(ι)λτι[άδο]	(1)(2)	Peek 61,61	461 (p. 62)	Ph.
52. πρί(α)σθαι	(2)(3)	ATL II D 10,6	453/2	CL
53. Ἐρυθραί(ο)ν	(2)(3)	ATL II D 10,33	453/2	CL
54. Κάλπιπ(ο)ς	(1)(2)	KL 134	redf.	CL
55. [Χα]ριμέν(ε)ς	(2)	SEG 19,39, II a 4	ca. 450	CL
56. Πάτροκλ(ο)ς	(1)(2)	Hopp., Rf. I	450/20	Ph.
		298,1		CL
57. Νε(ο)πτόλεμος	(1)(2)	Hopp., Rf. II	450/20	
		164,6		CL
58. στεφανοῦσ(ι)ν	(2)	IG I ² 1037,1	before 430 (IG	
			I ¹ s., p.	CL
			114,491 ^a)	
59. Γρ(υ)ρχῆς	(2)(5)	ATL II 39, I 23	416/5	Ph.
60. ἀχόν(ι)δες	(2)	SEG 13,13,251	415/4	Ph.
61. ἐποίησ(ε)ν	(1)(2)	CVA D 22, pl.	ca. 410/05	FS
		119,1—4		
62. Μικίων(ι) ἐγ	(2)	IG I ² 373,255	409/8	
		K[		Inscr. exam.
63. Κηφισ(ι)ῆς	(2)	IG I ² 398,20	408/7	
64. Εὐξ(ι)θέο	(2)	IG II ² 1951,131	406 (SEG	Comm.
			10,356)	Inscr. exam.
65. Εὐ(ω)δία	(1)(2)	CVA USA 2, III	end 5th c.	CL
		Ic, pl. 23,1 a—c		
66. ἐποίησ(ε)ν	(1)(2)	ARV 1318,1	end 5th c.	CL
67. ἐποίησ(ε)ν	(1)(2)	Hopp., Rf. I	end 5th c.	FS
		51,1		
68. [Μν]ησι-	(2)	IG II ² 2364,5	ca. or just before	Inscr. exam.
θείδ(η)ς			400	
69. Τρ(ι)τώ	(2)(5)	IG II ² 12824,1	ca. 400	Inscr. exam.
70. Ἐπ(ι)κράτης	(2)	IG II ² 1928,4	begin. 4th c.	CL
71. Ἠγήσα(ν)-	(2)	IG II ² 11564	begin. 4th c.	CL
δρ(ο)ς				
72. Ἡρ(α)κλεῖ	(1)(2)	Hesp. 17,137	400/350 (p. 140)	Ph.
73. στάχυ(ε)ς	(2)	IG II ² 1425,264	368/7	CL

118. Norm: .
Var.: <Π>.

1. Νιόπη (1) KM 204
2. Εὐπουλίδης(ης) IG II² 1292,31 end 5th c.
ca. 250

CL
CL

119. Norm: .
Var.: <Φ>.

1. Κόρυφος (1) Wer. 73
2. κισσύφιον IG II² 1424a,265 redf.
369/8

Comm.
Inscr. exam

120. Norm: .
Var.: <Θ>.

1. ἐν τῇ <β>ολῇ (2)(3) ATL II D 10,10 453/2

CL

121. Norm: <Φ>.
Var.: <X>.

1. στεχάνου (2) IG II¹ 615,9 ca. 300 (IG II²
1265) CL

122. Norm: <M>.
Var.: .

1. βαρνάμενοι (6) (Diss) IG I² 943,46
2. ξυββάλλεσθαι (Ass) IG II² 107,11 ca. 440/39
368/7 CL
CL

123. Norm: <T>.
Var.: <Θ>.

1. δεκάθεν
2. Ἀθην IG I² 711,4 6th/5th c.
IG II² 1951,276 406 (SEG
10,356) Comm.
CL
IG II² 774,b 17 ca. 250/49 CL

124. Norm: <Θ>.
Var.: <T>.

1. ἡποστένε[ς] (1) Kr. 154,136
2. Στένελος (1) Hopp., Rf. II 575/50
260,40 530/00 Comm.
Spec. ph.
3. Σμίκυτος (1)(6) Kr. 154,136 530/00 Comm.

4. Εὐθυμίδης (1) Hopp., Rf. II end 6th c. CL
366,14
5. Κλεστένης (1) Hesp. 19,389,31,2 483/2? (p. 377) FS
6. κατ' ἑμέραν SEG 10,243,I 19 ca. 465/55 CL
7. κατ' [ἑμέραν SEG 10,243,II 14 ca. 465/55 CL
8. Τάλεια Wer. 7,3 redf. CL
9. κατ' ἑμέραν Hesp. 38,117,17 416/5 (p. 114) Ph.
10. κατ' ἑμέραν IG I² 373,69 409/8 CL
11. κατιστάσιν IG I² 374,57 408/6 CL
12. τίτη IG II² 1656,3 begin. 4th c. Ph.
13. κατ' ἡμέραν IG II² 10226,1 395/4 CL
14. Βίσταρος (5) SEG 21,1032 after 350 Comm.
15. Εὐθυμίδης (3)(6) SEG 21,1026 4th c. —
16. Εὐθύφρων IG II² 2504,3 just after 300 Comm.
17. Τουκρίτου IG II² 4449,2 ca. 211/0 CL
18. <Ἀλ>κιστέ- 3rd c. Comm.
νου(ς)

14. The writer corrected himself by writing a Θ above the T.
15. Prob. = Εὐθυμίδης. Marked (6).

125. Norm: <Θ>.
Var.: <TΘ>.

1. Μιστοόδικος (1)(2) Def. 29,9 4th/3rd c. FS

1. O prob. = Θ; marked (2).

126. Norm: <T>.
Var.: <Δ>.

1. καδέθεκεν IG I² 817,2 6th c. (SEG
15,50) Comm.
2. Ἀφροτίδε (1) (Met) CVA D 21, pl. 490/80 FS
84,1—2

127. Norm: <Δ>.
Var.: <T>.

1. Ἀφροτίδε (1) (Met) CVA D 21, pl. 490/80 FS
84,1—2
2. τοῖς T' SEG 10,404,3 ca. 476/5 (SEG
13,35) Ph.
ἀδάμ[αντος]

2. The writer first wrote T, then he changed it into I.

128. Norm: <Θ>.
Var.: <Δ>.

1. Κορίνθιον (1)(5) Def. 73,2
2. τῆς χονίας (1) Def. 90,b 1

4th c. (Wilh., p. 112)
4th/3rd c. CL
CL

129. Norm: <Δ>.
Var.: <Θ>.

1. Θωρόθεος (1) (Ass) Kr. 153,134
2. Θεοθῶρ (1) (Ass) IG II² 1838,1
3. μηθα[μ]οῦ (1)(5) Zie. I 10,19

begin. 4th c.
4th c. (Philol. 54,64 ff.)
ca. 300 Comm.
CL
CL

130. Norm: <Θ>.
Var.: <Θ>.

1. Ἀγα<θ>οκλής (2)(3) IG II¹ 329,33 256/5 (SEG 21,377) CL

131. Norm: <Δ>.
Var.: <Θ>.

1. Ἀν<δ>ρομάχε (1)(2) Hopp., Rf. I 500/475 CL
2. Ἀν<δ>ρομάχε (1)(2) 119,8
3. ὁγ<δ>όει (2) Kr. 183/4,161
4. ἐγ<δ>ρυμοῦ (2) SEG 13,21,29 redf.
5. Πό<δ>ων[α] (1)(2)(5) IG II² 1672,271 415/3

Comm.
Inscr. exam.
CL
CL

132. Norm: <Θ>.
Var.: <Σ>.

1. Ἐρεχσε<ύ>ς (1) CVA D 12, pl. 205,1—2 ca. 475 FS
2. παραδοσεισῶν
3. Κασσανεῖς (5) IG II² 1611,8 357/6

Inscr. exam.
Comm.

133. Norm: <Τ>.
Var.: <Σ>.

1. καὶ σαῖς
2. καὶ σᾶλλα
3. πρὸς σόν

IG II² 1672,201 329/8 CL
IG II² 2498,12 321/0 CL
IG II² 657,10 287/6 CL

134. Norm: <Σ>.
Var.: <Τ>.

1. πᾶτι
2. πρὸτ οἷς

IG II² 12974,4 after 350
IG II² 1672,308 329/8 Inscr. exam.
CL

135. Norm: <Κ>.
Var.: <Χ>.

1. [Ο]χεανός (1)(5) Hopp., Bf. 150,2 B ca. 570 (Cook, p. 73) Ph.
2. χαλός (1) Hopp., Rf. I 46,2 530/00 FS
3. Χλίσσορος (1)(3) Hopp., Rf. I 427,58 end 6th c. FS
4. ἐχ τὸν ἐρίον SEG 10,398 6th c. (SEG 21,115) Comm.
5. Χαιρέστρατος (1)(7) Hartw., pl. 19,1 500/475 FS
6. Βάχχε (1) (Ass) Hopp., Rf. II 183,6 475/50 CL
7. χαλός (1) Gerh., AV pl. 286 475/50 FS
8. Βάχχη (1) (Ass) Hopp., Rf. I 196,2 450/20 CL
9. Βάχχιος (1) (Ass) ABV 413,2 375/4 CL
10. ἐχ Λέσβου IG II² 107,8 368/7 CL
11. [Β]άχχιος (Ass) IG II² 2939,1 4th c. Inscr. exam.
12. προσόδους χαί SEG 22,117,5 ca. 330 Ph.
13. χόνις (1)(3) CIG 1034,6 4th/3rd c. CL
14. χαὶ ἄλλους IG II² 652,10 just after 286/5 (SEG 23,65) CL
15. Ἰάχχωι (Ass) IG II² 4680,2 3rd c. CL

3. The inscription is not visible any more; marked (3).

136. Norm: <Χ>.
Var.: <Κ>.

1. Λάκις (1) CVA F 3, pl. 17,2,5 530/00 CL
2. ναίχι (1) Hopp., Rf. I 415,14 end 6th c. CL
3. καῖρε (1) Hopp., Rf. II 368,17 end 6th c. CL

1. = Λάχης.

4. Κίρον	(1)	CVA I 14, pl. 29,1—4	500/475	CL
5. Κρισεῖς	(1)(6)	Kr. 206,191	500/475	Comm.
6. Κρισεύς	(1)(6)	Kr. 206,191	500/475	Comm.
7. Ὀλύμπιος	(3)	SEG 16,23,12	465/4	FS
8. Μόρυκος	(3)	SEG 16,23,28	465/4	FS
9. δωδεκεμέρο		IG I ² 374,89	408/6	CL
10. προκοίδιον		IG II ² 1641,44	ca. 350	CL
11. [Καλλ]ιστομάχη		IG II ² 7557	ca. 350	CL
12. ἄρκοντος	(3)	IG II ¹ 329,11	256/5 (SEG 21,377)	CL

5. Prob. = Χρυσήϊς.
6. Prob. = Χρυσεύς.

137. Norm: <K> /-<Σ>.
Var.: <X>.

1. ἐχ Σαμίον	IG I ² 101,17	412/1	CL
2. ἐχ Σάμο	IG I ² 304,20	410/09	CL
3. ἐχ Σάμο	IG I ² 304,34	410/09	CL

138. Norm: <K>.
Var.: <XK>.

1. Ἐρ<Υ>ογκράτης	(1)	Def. 117,3	4th/3rd c.	FS
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139. Norm: <Γ> corresponding to tentative /g/.
Var.: <K>.

1. [Α]έακρος	(1)	ARV 354,25	500/475	CL
2. Βρυῖκος	(1)(5)	ARV 398,12	500/475	FS

140. Norm: <K> /-<P>.
Var.: <Γ>.

1. ἀγροπόλει	(Ass)	IG II ² 508,11	end 4th c.	CL
2. ἐγ Παμνοῦντος	(Ass)	SEG 3,122,7	262/55	Ph.

141. Norm: <K> /- $\left\{ \begin{array}{l} \langle \Pi \rangle \\ \langle T \rangle \\ \langle K \rangle \\ \langle \Phi \rangle \\ \langle \Theta \rangle \\ \langle X \rangle \end{array} \right\}$.
Var.: <Γ(K)>.

1. ἐγ Κλαμαδῶ[ν]	IG I ² 101,5	412/1	CL
2. ἐγ Κολ[λης]	IG II ² 1609,72	366/5 (SEG 25,184)	CL
3. ἐγφορήσα[ντα]	IG II ² 1666,B 55	353/2	CL
4. ἐγτριβεῖ	IG II ² 1670,17	ca. 330	FS
5. ἐγ Πειραιῶς	IG II ² 1672,125	329/8	CL
6. ἐγ Πειραιῶς	IG II ² 1672,146	329/8	CL
7. ἐγ Πειραιῶς	IG II ² 1672,150	329/8	CL
8. ἐγ Πειραιῶς	IG II ² 1672,165	329/8	CL
9. ἐγκ Πειραιῶς	IG II ² 1672,173	329/8	CL
10. ἐγκαίδεκα	IG II ² 1672,148	329/8	CL
11. ἐγπλευσα[σῶν]	IG II ² 506,10	ca. 302/1	CL

142. Norm: <Γ> corresponding to tentative /g/.
Var.: <X>.

1. Χλαύχε	(1) (Ass)	Kr. 201,184,3	450/20	CL
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143. Norm: <X>.
Var.: <Γ>.

1. Τερ<φ>σειγόρης	(1)(5)	Kr. 182	475/50	Spec. ph.
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144. Norm: <X>.
Var.: <Θ>.

1. δρα<χ>μάς	(2)	IG II ² 109,b 28	363/2	CL
2. εἰσπρα<χ>θέν	(2)	IG II ² 1534,95	291/0 (SEG 16,118)	CL

145. Norm: <Γ> /<α>-<α> corresponding to tentative /g/.
Var.: <Θ>.

1. Τρά<γ>ίλος	(2)(5)	IG I ² 64,115	421 (SEG 10,90)	CL
2. [κ]ατεα<γ>ότε[ς]	(2)	IG II ² 120,41	353/2 (SEG 16,49)	CL
3. ὀλί<γ>οις	(2)	IG II ² 11375,2	after 350	Inscr. exam.
4. ὀλι<γ>αρχίαι	(2)	IG II ² 448,61	318/7	CL

5. 'Ολι<γ>ανθίδης (1)(2)

6. Φι<γ>α[λέων] (2)(5)

καί

7. Φι<γ>αλεῦσιν (2)(5)

Def. 37,1

IG II² 687,25

IG II² 687,39

4th/3rd c.
265/4 (SEG
21,373)
265/4 (SEG
21,373)

Comm.
CL

CL

146. Norm: <Γ> / {<σ>-
-<σ>} corresponding to tentative /g/.
Var.: <Θ>.

1. <Γ>λαύκε (1)(2) Kr. 170,147
2. <Γ>λαῦκος (1)(2) Kr. 171,147 560/30
3. Λέα<γ>ρος (1)(2) ARV 1593,37 bis 550/30
4. Λέα<γ>ρος (1)(2) ARV 1593,39 end 6th c.
5. Λέα<γ>ρος (1)(2) ARV 1593,40 end 6th c.
6. Διό<γ>νητος (1)(2)(3) Delt. 23:2:1,28 end 6th c.
7. γε<γ>ραμμέναι (2) IG II² 1424a,339 before 450?
8. πεπρα<γ>μέν[α] (2) IG II² 1631,326 369/8
9. εὐερ<γ>εσ[ί]ας (2) SEG 21,310,19 323/2
10. 'Ερ<γ>ογκράτης (1)(2) Def. 117,3 319/8
11. 'Α<γ>νούσ: (2) IG II² 1534,95 4th/3rd c.
291/0 (SEG
16,118)

Comm.
Comm.

CL

CL

CL

CL

—

Inscr. exam.

CL

Inscr. exam.

FS

CL

147. Norm: <Γ> / <α>-<α> corresponding to tentative /g/.
Var.: <α>.

1. μεαά(λαι) (3) IG II² 1616,22 after 358/7
2. [Δι]οι[έ]νης (3) IG II² 2385,39 ca. 350
3. ὦι εείτων (3) IG II² 2493,6 339/8
4. ὑοιές (3) IG II² 1472,38 319/8
5. θυεάτηρ (3) IG II² 7425,3 just before 317/6

CL

CL

Inscr. exam.

Inscr. exam.

Inscr. exam.

148. Norm: <Γ> / {<σ>-
-<σ>} corresponding to tentative /g/.
Var.: <Ι>/<Ε>.

1. Θεοίνις (3) SEG 16,23,52 465/4
2. Φιλοῦρεος (3) IG II² 7196,1 400/350
3. Ενιφωνίδου (3) IG II² 1927,172 just after 300
4. 'Αινιάδης (3) IG II² 2394,7 (SEG 25,192)
340/39 or 313/2

FS

CL

CL

CL

149. Norm: <Γ> / {<σ>-
-<σ>} corresponding to tentative /g/.
Var.: <Σ>.

1. ἐρσαστηρίου IG II² 2496,16 after 350

Inscr. exam.

150. Norm: <Θ>.
Var.: <Χ>.

1. ἀρχιμός IG II² 1672,49 329/8

CL

151. Norm: <Ζ>.
Var.: <Σ>.

1. ὑπόσωμα IG II² 1424a,398 369/8
2. ο[ϛ] τὰ σῶ[ι]α (6) IG II² 1514,15 344/3
3. ἐπ[ε]ψήφισεν IG II² 233,a 3 340/39
4. συνενεχυράσουσιν IG II² 1183,35 after 340
5. ἐπεψήφισεν IG II² 354,7 328/7
6. ἐπεψήφισεν IG II² 361,6 325/4
7. Σώπυρος (3) SEG 23,89,39 end 4th c.
8. κομίσεσθαι (5) IG II² 12141,9 ca. 250

Inscr. exam.

CL

Comm.

Inscr. exam.

CL

CL

CL

Inscr. exam.

2. The reading is somewhat doubtful, but cf. line 33 ζῶια.

152. Norm: <Σ>.
Var.: <Ζ>.

1. Ζακονίδες (1) Hopp., Bf. 322,3 550/25
2. Σοζίας (1)(6) Kr. 172,149 end 6th c.
3. ἐ Ζ[αμ]βονιδῶν (1) Hesp. 21,3,9,2 417 or 415 (p. 6)
4. ε]ργαζμένο[ν] IG II² 1582,79 ca. 350 (SEG
17,40)
5. Τρικ<ο>ρυζίου IG II² 7557 ca. 350
6. ἀναβαζμ[ο]ύς IG II² 1672,308 329/8
7. [Σ]τηζ[ί]ας (1) Zie. II 15,b 1 4th c.
8. Ζμίκυθος Hesp. 220/19 Ph.
9. <Ξ>καζτον (3) 38,425,2,91
IG II² 620,6 end 3rd c. (IG
II² 1317)

Spec. ph.

Comm.

Ph.

Comm.

Inscr. exam.

CL

CL

Ph.

CL

2. Another interpretation: ναί ζῶν (CVA D 20, pl. 222,1). Marked (6).

153. Norm: <Ζ>.
Var.: <ΣΖ>.

1. Βυσζάντιος (5) IG II² 8438,3 after 350
2. ἐπε[ψή]φισεν SEG 21,312,7 319/8
3. ἐπεψήφισε IG II² 448,39 318/7
4. συναγωνισζόμε[νος] IG II² 743,8 begin. 3rd c.
5. ἐπεψήφ[ι]σεν IG II² 689,5 272/1 (SEG
16,64)

Comm.

Ph.

CL

CL

CL

1. The writer first wrote Ζ, then erased that letter and wrote ΣΖ.

154. Norm: <Σ>.
Var.: <ΣΖ>.

1. ἐνδὲσζιμους

IG II² 1672,308 329/8

155. Norm: <Τ>.
Var.: <Ζ>.

1. ζειημιποδίους
2. Ἀζηνε[ί]ς

(3)

IG II² 1672,57
IG II² 1927,180

329/8
just after 300
(SEG 25,192)

1. = τριη-.

156. Norm: <Ζ>.
Var.: <Τ>.

1. κλύτετ[ε] (1)(2)
2. νίτε<τ>ε (1)(2)
3. ὀλέτον (3)
4. Ἐβρυτέλμιδος (5)

IG I² 789,1 before 460
IG I² 789,2 before 460
ATL II D 10,20 453/2
IG II² 31,11 386/5

157. Norm: <Δ>.
Var.: <Ζ>.

1. τοῖσζ'
ἀδάμ[αντος]

SEG 10,404,3 ca. 476/5 (SEG 13,35) Ph.

1. The writer had written Τ, then changed it into Ι.

158. Norm: <Ζ>.
Var.: <Δ>.

1. Δεύς (1)(5)

Graef II 211 530/00

159. Norm: <Ζ>.
Var.: <ΖΔ>.

1. Ζδεύς (1)(5)

Kr. 103,85 600/575

160. Norm: <Δ>.
Var.: <ΣΔ>.

1. πώσδας (1)

Audoll. 94,66,5 4th/3rd c.

Comm.

CL

CL

CL

CL

CL

CL

Comm.

Ph.

Spec. ph.

161. Norm: <Ξ> (OA <ΧΣ>).⁷⁹
Var.: <Σ(Σ)>.

1. Φοῖνει<χ>ς (1)(2)(3)

Hopp., *Rf.* I 427,58 end 6th c.

FS

2. Ἀλέ<χ>σανδρος (1)(2)

Kr. 182

blackf.

Comm.

3. <Φ>ιλύ<χ>σσε- (1)(2)

Kr. 182

blackf.

Comm.

4. Φίλο<χ>σσένο{ν} (1)(2)

Hesp. Suppl. 8,395,3,2 490/80

FS

5. Καλλι<χ>σένοι (1)(2)

Hesp. 19,385,16,1

483/2? (p. 377)

FS

6. Καλί<χ>σε[νος] (1)(2)

Hesp. 19,387,21,1

483/2? (p. 377)

FS

7. Κ{λ}αλί<χ>σενος (1)(2)

Hesp. 19,389,31,1

483/2? (p. 377)

FS

8. σύλιναι

IG II² 1641,51

ca. 350

CL

9. ἵος συλίνη (Ass)

IG II² 1501,16

ca. 340/30

CL

10. σύλιναι

IG II² 1623,331

333/2

CL

11. Χοῖνις

IG II² 1672,15

329/8

Inscr. exam.

1. The inscription has been covered through careless restoration; marked (3).

162. Norm: <Σ>.
Var.: <Ξ>.

1. Ξωπυρίων

IG II² 4677,1 3rd c.

CL

163. Norm: <Ζ>.
Var.: <Ξ>.

1. Ξωκύπρου
2. Θεοξοτί[δ]ου (3)

IG II² 2934,2 ca. 350
IG II² 1927,39 just after 300

CL

CL

3. ὅπως ἂν φράξει

IG II² 1685,B 5,5 begin. 3rd c.

CL

CL

164. Norm: <ΧΣ>, (down to 403).
Var.: <Χ>.

1. Χ<σ>ανθός (1)(2)

Gerh., *AV* pl. 191 blackf.

FS

2. Καλίχ<σ>ενος (1)(2)

Hesp. 19,386,19,1 483/2? (p. 377) Ph.

165. Norm: <ΧΣ>, (down to 403).
Var.: <ΧΣΧ>.

1. Ἀσχίόχο

IG I² 331,6 before 403

CL

⁷⁹ Marked (2) down to 403, i.e. till the introduction of <Ξ> and <Ψ>.

166. Norm: <ΣX>.

Var.: <XΣ>.

1. Αιχσίνες

IG I² 543,1

6th c.

1. Corrected into Αισχίνες by the writer.

167. Norm: <K> / - $\begin{Bmatrix} \langle \Sigma \rangle \\ \langle Z \rangle \\ \langle P \rangle \\ \langle \Lambda \rangle \end{Bmatrix}$
 Var.: <Ξ> (OA <XΣ>).

1. [έ]χς Λέρο
2. έχς 'Ρόδο
3. έξ Σαλα[μῖνος]
4. έξ 'Ρηνείας
5. έξ Ζέας
6. έξ Σιγείου
7. έξ Σικ[ελίας]

(5)

ATL II 1,VI 20 454/3
 IG I² 218,11 426/5
 IG II² 1579,8 begin. 4th c.
 IG II² 1635,27 375/4
 IG II² 1611,327 357/6
 IG II² 10575a ca. 350
 IG II² 283,8 before 336/5

CL
CL
CL
CL
CL
CL
CL

168. Norm: <XΣ>, (down to 403).
 Var.: <KΣ>.

1. Κσενοκλῆς (1)
2. Κσενοκλῆς (1)

ARV 184/5 550/25
 ABV 184/5 550/25

CL
CL

169. Norm: <XΣ>, (down to 403).
 Var.: <ΣK>.

1. Καλλίσκενος (1)

Hesp. 19,385,17 483/2? (p. 377) Ph.

170. Norm: <Ψ> (OA <ΦΣ>).⁷⁹
 Var.: <Σ>.

1. Κέκρο<φ>ς (1)(2)
2. Τερ<φ>σιχόμε (1)(2)
3. Τερ<φ>σειγόρης (1)(2)(5)
4. Θέρσανδρος (1)

CVA D 12, pl. ca. 475
 205,1—2
 Kr. 154,36 475/50
 Kr. 182 475/50
 Def. 7,7 4th/3rd c.

FS
Comm.
Spec. ph.
CL

3. = Τερψιχόρης.

⁷⁹ See p. 141.

171. Norm: <Σ>.
 Var.: <Ψ>.

1. έρειψαμένωι

IG II² 1672,180 329/8

CL

172. Norm: <ΦΣ>, (down to 403).
 Var.: <ΠΣ>.

1. 'Οπσίμε (1)(6)
2. Χάροπς (1)
3. Αύτοπσία (1)

Kr. 179,157 500/475
 Kr. 179,157 blackf.
 Kr. 179,157 redf.

Comm.
Comm.
Comm.

173. Norm: <N>.
 Var.: <K>.

1. έκ ξύλωι (3) (Ass)
2. σταθμόκ και (3) (Ass)

IG II² 1652,11 333/2
 IG II² 1652,24 333/2

CL
CL

174. Norm: <Σ>.
 Var.: <Λ>.

1. τὸλ λίθο[ς] (Ass)
2. τὸλ λίθος (Ass)

IG I² 350,46 436/5
 IG I² 313,151 408/7

CL
CL

1-2. Acc. plur.

175. Norm: <P>.
 Var.: <I>/<E>. (Not all instances.)

1. τει[η]
2. 'Οιχ[ο]μένιο(ς)
3. ζειημιποδίους
4. Μέναιχος (5)
5. Σμικείας (3)

IG II² 1604,27 ca. 430 (SEG 10,353/5) Inscr. exam.
 Hesp. 22,240,I 414/3 (pp. 232 f.) Ph.
 165
 IG II² 1672,57 329/8 CL
 IG II² 1956,192 ca. 300 Inscr. exam.
 IG II² 1927,125 just after 300 CL
 (SEG 25,192)

1 and 3 = τριη-.

176. Norm: <Θ> / $\begin{Bmatrix} \langle \sigma \rangle \\ \langle \alpha \rangle \end{Bmatrix}$ -, (down to 403).
 Var.: <H>.

1. ἄλο[ρος] (6)
2. ηυιήύς (1)
3. ηυιή<ύ>ς (1)
4. ηυιήύς (1)

SEG 22,68,3 ca. 550
 ABV 162,2 550/25
 ABV 162,3 550/25
 ABV 163 550/25

Ph.
CL
CL
CL

5. <i>θυλός</i>	(1)	<i>ABV</i> 163			
6. <i>Λέον</i>	(1)	<i>ABV Paralip.</i> 70	550/25		
7. <i>Λέον</i>	(1)(5)	Graef I 1632c	550/25		
8. <i>Λιάβετος</i>	(1)(5)	Graef I 1632a	550/25		
9. <i>Λιβυκαί</i>	(1)(5)	Graef I 1633e	550/25		
10. <i>ἐν μέσοι</i>		<i>SEG</i> 10,345	550/25		
11. <i>μεγάλο</i>		<i>IG</i> I ² 623,2	just before 514 (<i>SEG</i> 15,53)		
12. <i>με[γάλο]</i>		<i>IG</i> I ² 710,2	6th c. (<i>Hermes</i> 70,462)		
13. <i>Ἀντίθ[εος]</i>	(1)	<i>SEG</i> 22,84,g I Extra	6th c. (<i>Hermes</i> 70,462)		
14. <i>ἀλόριον</i>		<i>IG</i> I ² 980,1	6th/5th c.		
15. <i>〈Φ〉ρεάρχιος</i>		<i>Hesp.</i> 4,369, fig. 25	ca. 500 (<i>SEG</i> 21,186)		
16. <i>Δάμ[ν]η[ππος]</i>		<i>SEG</i> 10,407,85	482		
17. <i>εὐλορχῶ</i>		<i>IG</i> I ² 34,6	458/7		
18. <i>τ[ρ]υχεμι[κ]ο- τύλι[ον]</i>		<i>IG</i> I ² 842,D 2	before 445 before 445		
19. <i>ἀντιελ[εν]</i>		<i>IG</i> I ² 77,9			
20. <i>πάρηεδροι</i>		<i>IG</i> I ² 127,19	ca. 435 (<i>SEG</i> 12,17)		
21. <i>προσηκέτο</i>		<i>ATL</i> II D 3,15	ca. 430 (<i>SEG</i> 10,59)		
22. <i>πρ[ο]σηλόσθον</i>		<i>IG</i> I ² 84,38	430/29		
23. <i>ἐνιδρύεσθαι</i>		<i>IG</i> I ² 76,55	421/0		
24. <i>παρήεδρ[ος]</i>		<i>IG</i> I ² 67,11	ca. 416/5 (<i>SEG</i> 12,34)		
25. <i>καθ[η]άπερ</i>		<i>IG</i> I ² 108,43	ca. 415 (<i>SEG</i> 10,112)		
26. <i>τριεμιποδῖος</i>		<i>IG</i> I ² 372,12	410/09		
27. <i>διη[ρ]μόσαντι</i>		<i>IG</i> I ² 373,147	409/8		
28. <i>παλιν[η]αίρετο</i>		<i>IG</i> I ² 313,131	409/8		
29. <i>προσηπέδομεν</i>		<i>IG</i> I ² 374,265	408/7		
30. <i>μεδ[η]νί</i>		<i>IG</i> I ² 73,6	408/6		
31. <i>κ[α]θ[η]άπερ</i>		<i>IG</i> I ² 133,4	before 403 before 403		
177. Norm: 〈Θ〉 / ≠, (down to 403). Var.: 〈Η〉.					
1. <i>ἡσ<β>ολος</i>	(1)(6)	Hopp., <i>Bf.</i> 150,2A	ca. 570 (Cook, p. 73)		
2. <i>ἡσ<κ>οῦρος</i>	(6)	<i>Hesp.</i> 11,329,A 10	end 6th c.		
3. <i>ἡσ<π>όλος</i>	(5)(6)	<i>IG</i> I ² 778,5	before 480		
1-3. = ho 'A-?; marked (6).					

4. <i>ἡσ<ε>ρῖται</i>	(5)	<i>ATL</i> II 9,II 26	446/5		
5. <i>ἡσ<ο>άντων</i>		<i>IG</i> I ² 51,10	433/2		
6. <i>ἡσ<ρ>ιο[ν]</i>		<i>SEG</i> 10,84,44	424/3		
7. <i>ἡσ<ο>στ[ῆ]</i>		<i>IG</i> I ² 297,B 15	414/3		
8. <i>ἡσ<ρ>ιον</i>		<i>IG</i> I ² 113,32	410/09 (<i>SEG</i> 12,38)		
9. <i>ἡσ<ο> τῶι πρὸν[εοι]</i>		<i>IG</i> I ² 254,283	408/7		
10. <i>ἡσ<ο> τῶι πρὸν[εοι]</i>		<i>IG</i> I ² 255,303	407/6		
11. <i>ἡσ<ο></i>		<i>IG</i> I ² 314,42	407/6		
12. <i>ἡσ<ο>λο[ν]</i>		<i>IG</i> I ² 314,69	407/6		
13. <i>ἡσ<α>τον</i>		<i>IG</i> I ² 870,3	before 403		
178. Norm: 〈σσ〉, (425—200). Var.: 〈σ〉.					
1. <i>τὰ<ς> σπονδάς</i>	(2)	<i>IG</i> II ² 8,16	424/3 (<i>SEG</i> 10,83)		
2. <i>φιδάνε<ς> στόμα</i>	(2)	<i>SEG</i> 13,16,34	415/3		
3. <i>τὸ<ς> στ[ρα- τεγός</i>	(2)	<i>IG</i> I ² 116,29	409/8		
4. <i>τὸ<ς> σφεισκος</i>	(2)	<i>IG</i> I ² 373,248	409/8		
5. <i>ἐ<ς> Σκίαθον</i>	(2)	<i>IG</i> I ² 118,12	408/7		
6. <i>Καλαίσχρο</i>	(2)(3)	<i>IG</i> I ² 829,1	end 5th c.		
7. <i>ἀρετῇ<ς> στήσα</i>	(2)	<i>IG</i> II ² 7716,2	end 5th c.		
8. <i>Νέσος</i>	(1)(2)(5)	Pfuhl, fig. 586	end 5th c.		
9. <i>Κάλιππος</i>	(2)	<i>IG</i> II ² 11786a	ca. 400		
10. <i>τάτεσθαι</i>	(2)	<i>Arch. Eph.</i> 1886,186,B 59	just after 400 (p. 207)		
11. <i>Γαργήτιος</i>	(2)	<i>IG</i> II ² 5932,4	begin. 4th c.		
12. <i>Καλιστώ<ς></i>	(2)	<i>IG</i> II ² 6996,1	begin. 4th c.		
13. <i>ὄρο<ς> σηματος</i>	(2)(3)	<i>Hesp.</i> 17,35,19,1	begin. 4th c.		
14. <i>ἄρχοντο<ς> Σκιοφοριῶνος</i>	(2)	<i>IG</i> II ² 1656,1	395/4		
15. <i>γραμματέα</i>	(2)	<i>IG</i> II ² 41,15	378/7		
16. <i>σύμαχοι</i>	(2)	<i>IG</i> II ² 42,5	378/7		
17. <i>ἐ[γ]γραμάτευε</i>	(2)	<i>IG</i> II ² 96,4	375/4		
18. <i>τῇ<ς> στήλης</i>	(2)	<i>SEG</i> 12,100,50	367/6		
19. <i>Φίλιπος</i>	(2)(3)	<i>IG</i> II ² 5986,1	365/40		

19. Marked (3); cf. Conze 1651.

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20. 'Αλικαρνασίδης	(2)(5)	IG II ² 8041,1		
21. Καλιστώ	(2)	IG II ² 5971,2	365/40	
22. Σφητίου	(2)	IG II ² 7515,2	before 350	
23. Καλισθένης	(2)	IG II ² 2388,10	before 350	CL
24. 'Ανάξιπος	(2)	IG II ² 2388,11	ca. 350	CL
25. Καλίας	(2)	IG II ² 2385,51	ca. 350	CL
26. Σφήτιος	(2)	IG II ² 7513,1	ca. 350	CL
27. Σωσίπη	(2)(3)	IG II ² 7639	ca. 350	CL
28. ἔφυ(ς) σοφίαι	(2)	IG II ² 11387,6	ca. 350	CL
29. Θράϊτα	(2)(5)	IG II ² 12808	ca. 350	CL
30. γλῶταν	(1)(2)(5)	SEG 24,263,I 2	ca. 350	CL
31. γλῶταν	(1)(2)(5)	Peek 97,9,2	ca. 350	Comm.
32. γλῶταν	(1)(2)(5)	Peek 97,9,5	ca. 350	Comm.
33. γλῶταν	(1)(2)(5)	Peek 97,9,16	ca. 350	Comm.
34. Κάλλιπος	(2)	IG II ² 3105,47	ca. 350	Ph.
35. εἰ(ς) σῶ	(2)	IG II ² 7195,4	after 350	Comm.
36. εἰ(ς) στήλας	(2)	IG II ² 2492,20	after 350	CL
37. Ποσειδίππος	(2)	IG II ² 1622,711	345/4	Ph.
38. Καλίου	(2)(3)	IG II ² 2394,7	ca. 342/1	CL
39. Μυριν[ούσιος]	(2)	IG II ² 243,7	340/39 or 313/2	CL
40. Καλιτέλης	(2)	IG II ² 243,8	337/6	CL
41. συγραφάς	(2)	IG II ² 1670,25	337/6	CL
42. εἰ(ς) σφῆνας	(2)	IG II ² 1672,9	ca. 330	CL
43. εἰ(ς) [σ]φῆνας	(2)	IG II ² 1672,10	329/8	Inscr. etim.
44. εἰ(ς) σταθμά	(2)	IG II ² 1672,173	329/8	CL
45. εἰ(ς) σφῆνας	(2)	IG II ² 1672,303	329/8	CL
46. τέταρες	(2)	IG II ² 1673,21	327/6 (SEG 15,128)	CL
47. ἐκκλησίαν	(2)	IG II ² 360,57	325/4	CL
48. στυπεῖον	(2)	IG II ² 1631,336	323/2	CL
49. πρ[ά]τει	(2)	Hesp. 13,231,5,6	just before 321/0	Ph.
50. τῆ(ς) στοῦς	(2)	IG II ² 1469,120	320/19	CL
51. κατακεκομένον	(2)	IG II ² 1469,133	320/19	CL
52. λεύσων	(2)	IG II ² 7863,7	just before 317	CL
53. τοῖ(ς) στρατηγούς	(2)	IG II ² 1479,65	312/1	CL
54. Εὐξενίπου	(2)	IG II ² 2679,1	303/2	CL
55. εἰ(ς) στήλην	(2)	IG II ² 542,13	before 303/2	CL
56. εἰ(ς) Σικυων[ίους]	(2)	Hesp. 8,35,9,12	303/2	Ph.
57. τῆ(ς) στήλης	(2)	IG II ² 530,5	end 4th c.	CL
58. 'Απολόδωρος	(2)	IG II ² 6347,1	4th c.	CL
59. Χαιρύλην	(1)(2)	Def. 89,b 2	4th c.	CL
60. Χαιρύλης	(1)(2)	Def. 89,b 4	4th c.	CL
61. Κύ[δ]ιπος	(1)(2)	Def. 36,1	4th c. (Wilh., pp. 108 f.)	CL
62. τῆ(ς) Μικίωνος	(1)(2)(5)	Def. 73,1	4th c. (Wilh., p. 112)	CL

63. Πύρο	(1)(2)	Def. 93,b 2	4th c. (Wilh., p. 112)	CL
64. γλῶταν	(1)(2)	Def. 94,3	4th c. (Wilh., p. 110)	CL
65. ἡτᾶσθαι	(1)(2)	Def. 94,15	4th c. (Wilh., p. 110)	CL
66. εἰ(ς) στε(φ)άνο[υς]	(2)	IG II ¹ 615,9	ca. 300 (IG II ² 1265)	CL
67. δ(μ) μελ[ε]τᾶι	(1)(2)(5)	Zie. I 10,15	ca. 300	CL
68. Σύρυλα	(1)(2)(5)	Def. 8,4	4th/3rd c.	FS
69. Φυλίδα	(1)(2)(5)	Def. 22,7	4th/3rd c.	CL
70. Ποσειδίππος	(1)(2)	Def. 30,5	4th/3rd c.	CL
71. γλῶταν	(1)(2)	Def. 52,2	4th/3rd c.	CL
72. γλῶταν	(1)(2)	Def. 54,a 1	4th/3rd c.	CL
73. γλῶταν	(1)(2)	Def. 54,a 4	4th/3rd c.	CL
74. γλῶταν	(1)(2)	Def. 54,a 7	4th/3rd c.	CL
75. γλῶταν	(1)(2)	Def. 57,21	4th/3rd c.	CL
76. μέλε[ι]	(1)(2)	Def. 63,3	4th/3rd c.	CL
77. Ἰπο(λ)όχης	(1)(2)	Def. 65,3	4th/3rd c.	CL
78. τὸν δοῦλο(μ) Μέλανος	(1)(2)(5)	Def. 68,b 15	4th/3rd c.	CL
79. γλῶταν	(1)(2)(5)	Def. 75,b 7	4th/3rd c.	CL
80. γλῶτα[ν]	(1)(2)	Def. 79,3	4th/3rd c.	CL
81. γλῶταν	(1)(2)	Def. 79,14	4th/3rd c.	CL
82. γλῶτα[ν]	(1)(2)	Def. 82,10	4th/3rd c.	CL
83. γλῶταν	(1)(2)	Def. 84,a 1	4th/3rd c.	CL
84. Λύσιπον	(1)(2)	Def. 111,1	4th/3rd c.	CL
85. Ν[ό]μιπος	(1)(2)	Def. 117,2	4th/3rd c.	FS
86. γλῶταν	(1)(2)	Def. 123,7	4th/3rd c.	CL
87. γλῶταν	(1)(2)	Def. 123,8	4th/3rd c.	CL
88. Ἰππον	(1)(2)	Def. 137,1	4th/3rd c.	CL
89. ἡτῶν[ται]	(1)(2)(6)	Def. 158,15	4th/3rd c.	CL
90. τεταράκοντα	(1)(2)(3)	CIG 1034,15	4th/3rd c.	CL
91. πρᾶτο[ντας]	(1)(2)(5)	Zie. I 11,3	4th/3rd c.	CL
92. γλῶταν	(1)(2)(5)	Zie. I 11,7	4th/3rd c.	CL
93. γλῶταν	(1)(2)(5)	Zie. I 11,9	4th/3rd c.	CL
94. 'Απολόδωρος	(1)(2)	Zie. I 12,2	4th/3rd c.	CL
95. [γλῶ]ταν	(1)(2)	Audoll. 94,66,2	4th/3rd c.	Comm.
96. Κίτος	(2)(5)	SEG 24,223,5	just after 300	Ph.
97. Καλισ[θένης]	(2)	Hesp. 2,498,14,11	begin. 3rd c.	Ph.
98. τῆ(ς) στήλης	(2)	IG II ² 643,10	299/8	CL
99. Τραλιανός	(2)(5)	IG II ² 10456,3	after 300	Comm.
100. Θράϊτα	(2)(5)	IG II ² 8906,2	after 300	CL
101. Θράϊτα	(2)(5)	IG II ² 8925,2	after 300	Comm.
102. πρᾶτω[ν]	(2)	IG II ² 655,7	289/8	CL
103. ἱπεῖς	(2)	SEG 21,525,7	282/1	Ph.
104. εἰ(ς) στ[ή]λην	(2)(3)	IG II ² 686,19	266/5	—

105. τὸν γραμματέα	(2)(3)	IG II ¹ 329,48		
106. ἐγγραμάτε[υεν]	(2)(3)	IG II ² 771,4	256/5 (SEG 21,377)	CL
107. τέταρες	(2)	IG II ² 1534,193	ca. 252/1	
108. Φειδίππης	(2)	IG II ² 1534,203	247/6 (SEG 16,118)	CL
109. Καλιστράτης	(2)	IG II ² 1534,250	247/6 (SEG 16,118)	CL
110. βασιλίσσης	(2)	IG II ² 776,9	247/6 (SEG 16,118)	CL
111. παρησίας	(2)	Hesp. 4,525,39,20	ca. 240	CL
112. ἐκλ[ησίαν]	(2)	IG II ² 851,6	226/5	Ph.
113. ἐκλησία	(2)	Hesp. 38,425,2,41	before 224/3 220/19	CL
179. Norm: <σ>.				
Var.: <σσ>.				
1. δίχυλλ[ον]	(1)	Graef I 921b		
2. [M]έμνον[ν]	(1)	ARV 57,40	ca. 550	Ph.
3. Μέμνον	(1)	ARV 57,43	530/00	CL
4. [M]έμ[νον]	(1)	ARV 60,63	530/00	CL
5. Μέμνον	(1)	ARV 62,85	530/00	CL
6. Μέμνον	(1)	ARV 64,99	530/00	CL
7. ἐπποιέσεν	(1)	ARV 91,51	530/00	CL
8. Νεοπτόλεμος	(1)	ABV Paralip. 119,35 bis	530/00	CL
9. Μίμνον	(1)	Hopp., Rf. I 186,3	530/00	Ph.
10. Μέμνον	(1)	Hopp., Rf. II 254,15	530/00	Spec. ph.
11. Μέμ[ν]ον	(1)	Hopp., Rf. II 258,32	530/00	CL
12. πίεσθε	(1)	Kr. 82, n. 2	530/00	CL
13. Ὀλλυτεύς	(1)	Kr. 146,131,3	blackf.	CL
14. ἡερακλῆς	(1)	CVA GB 9, pp. 99 f., pl. 8,5—6	end 6th c.	CL
15. καλλός	(1)	Hopp., Rf. I 406,16	end 6th c.	CL
16. καλλός	(1)	Hopp., Rf. I 406,16	end 6th c.	CL
17. Μέμνον	(1)	CVA DK 3, pl. 137,2 a—b	end 6th/begin. 5th c.	Ph.
18. ι[...]εσσθε	(1)	CVA F 3, pl. 13,9—10	end 6th/begin. 5th c.	CL
19. Τριπτόλεμος	(1)	CVA GB 5, pl. 28,2 a—b	500/475	CL

20. Εὐμόλπιος	(1)	CVA GB 5, pl. 28,2 a—b	500/475	CL
21. Τέρπικλος	(1)	ARV 308,1	500/475	CL
22. Πολυφράσσμ[ον]	(1)(5)	ARV 438,132	500/475	Spec. ph.
23. Πολυφράσσμ[ον]	(1)	ARV 438,132	500/475	Spec. ph.
24. ἈρισσΑΛΤΛΟ	(1)	ARV 456,4	500/475	CL
25. <Ἀ>ρισ- σταγόρας	(1)	ARV 1565,1	500/475	CL
26. Ἀρισ- σ<τ>α[γόρας]	(1)	ARV 1565,3	500/475	CL
27. Ἀρισσταγό[ρας]	(1)	ARV 1566,4	500/475	CL
28. καλλός	(1)	ARV 1588,8	500/475	CL
29. Ὀρείμαχος	(1)	Hopp., Rf. I 58,1	500/475	CL
30. Ὀρέσστες	(1)	Hopp., Rf. I 200,3	500/475	CL
31. μάλισσα		IG I ² 924,4	ca. 500/450	CL
32. Ἀρρίφρονος	(1)	IG I ² 909,1,2	485/4	CL
33. Ἀρρίφρ[ονος]	(1)	IG I ² 909,2,1	485/4	CL
34. Καλλίχσενος	(1)	Hesp. 19,383,9	483/2? (p. 377)	FS
35. Ἀρριστόνυμος	(1)	Hesp. 19,383,10,2	483/2? (p. 377)	FS
36. Ἀρισστονύμο	(1)	Hesp. 19,383,11,2	483/2? (p. 377)	Ph.
37. Θεμισστοκλῆς	(1)	Hesp. 4,369, fig. 25	482	Ph.
38. Θεμισσθοκλῆς	(1)	Hesp. 5,40, fig. 39	482	Ph.
39. Πισστο[		IG I ² 544,2	before 480	CL
40. ἐκκ προ[δοτ]ῶ[ν]	(1)	Peek 71,121,2	ca. 480 (Hesp. 24,288, n. 13)	Ph.
41. σοφροσύνεν	(1)	Graef II 563	ca. 480	FS
42. Λεοσθένης	(1)	ARV 446,260	before 475	CL
43. Ἀσμετος	(1)	ARV 632,1	475/50	CL
44. καλλός	(1)	ARV 651,29	475/50	CL
45. Καλίας	(1)	Kr. 175	475/50	CL
46. Ἀππλόδορος	(1)	CVA I 28, III I, pl. 23,1	ca. 470	Ph.
47. [K]ράτυλλος		IG I ² 929,45	460 (SEG 14,19)	CL
48. Αἰσχύλο		IG I ² 571,3	ca. 460/50 (SEG 15,41)	CL
49. Κάσσορ	(1)	CVA D 7, pl. 20,1—2	460/50	CL
50. μέτεσστιν		IG I ² 26,8	ca. 458 (SEG 13,3)	CL
51. ἄ<ρ>ισσα	(3)	ATL II D 10,21	453/2	CL
52.]εσσθα[ι		SEG 10,12,2	452/1	Ph.
53. Μέμνον<ν>	(1)	ARV 1600/01	redf.	CL
24. = Ἀρισταγόρας.				

54. Κάσμος	(1)	Kr. 148,132	redf.	CL
55. [T]ρίτονος	(1)	Kr. 174,151	redf.	CL
56. Νέσσορ	(1)	Kr. 174,152 (CIG 8158)	redf.	Comm.
57. Νέσσορ	(1)	Kr. 174,152	redf.	Spec. ph.
58. 'Αστυόχε	(1)	Kr. 174,152	redf.	CL
59. Φαιστίο	(1)	SEG 19,47	ca. 450	Ph.
60. Νικοκ[[κ]]λῆς	(1)	Hesp. 17,45,37,11	ca. 450	Ph.
61. Κασμ[.]x	(1)	CVA D 22, pl. 148,4	ca. 450	CL
62. Βυζάν[τιοι]	(5)	ATL II 5, V 16	450/49	CL
63. Καρύσ[σ]τ[ι]οι	(3)(5)	ATL II 5, IV 26	450/49	CL
64. [[ησσ]τιχιῆ[s]	(3)(5)	ATL II 5, IV 34	450/49	CL
65. Πιστόξενος	(1)	ARV 995,124	450/20	CL
66. Θ<ε>μιστό	(1)	Kr. 175	450/20	CL
67. 'Εφαισσι[τιῆς]	(5)	ATL II 8, I 96	447/6	CL
68. 'Ασ[τυ]παλιῆς	(5)	ATL II 8, II 28	447/6	CL
69. ηεσσι[τιῆς]	(5)	ATL II 8, II 36	447/6	CL
70. ἔςς Τένεδο[v]		ATL II 8, II 108	447/6	CL
71. ἔςς Τένεδον		ATL II 8, II 109	447/6	CL
72. 'Αζζε[ιοί]	(5)	ATL II 13, II 26	442/1	CL
73. 'Αρκέσσεια	(5)	ATL II 15, I 77	440/39	CL
74. συσσεμινύσθον		IG I ² 91/2,17	434/3 (SEG 12,18)	CL
75. 'Ασπειος	(1)(5)	Immerwahr 20,3	ca. 430	CL
76. [[ι]ερες π[αρά]	(5)	ATL II A 9, IV 62	425/4	CL
77. HOTTE	(3)(6)	IG I ² 79,13	ca. 425 (SEG 21,41)	CL
78. τῷ Ρρε[τ]ῷ		IG I ² 81,15	421/0	Comm.
79. ἐλλ. Λε<λ>ά[ντοι]		SEG 13,13,178	415/3	Ph.
80. Κυζικενῷ		IG I ² 313,10	408/7	CL
81. ὄρυμοί		IG I ² 313,21	408/7	CL
82. ὄρυμοί		IG I ² 313,22	408/7	CL
83. ὄρυμός		IG I ² 313,27	408/7	CL
84. ὄρυμοί		IG I ² 314,27	407/6	CL
85. ὄρ[υ]μοί		IG I ² 314,28	407/6	CL
86. ἀρτέματα		IG I ² 314,40	407/6	CL
87. ἐργάσσατο	(5)	IG I ² 529,3	end 5th c.	CL
88. 'Αρίστυλλα		IG I ² 1058,1	end 5th c.	CL
89. 'Αρίσσιωνος		IG I ² 1058,2	end 5th c.	CL
90. Νικοστράτη		IG I ² 1059	end 5th c.	CL
91. Κάστωρ	(1)	CVA GB 8, III	end 5th c.	CL
		Ic, pl. 91,1 a—d		

77. May be read HOTTE = ἦοι τε.

92. 'Ασπερόπη	(1)	CVA GB 8, III	end 5th c.	CL
		Ic, pl. 91,1 a—d		
93. 'Αρίστο	(1)	CVA GB 9, p. 109, pl. 52,13	end 5th c.	CL
94. 'Αριστομά[χη]	(1)	Hopp., Rf. I 17,5	end 5th c.	CL
95. 'Αριστομ[άχε]	(1)	Kr. 175	end 5th c.	CL
96. 'Αρίστων	(5)	IG I ² 1070,2,3	5th c.	CL
97. 'Αλλκαῖος	(1)	Hesp. 5,348,3b	5th c.	Ph.
98. Διοσκόρον	(1)(6)	Graef II 1479	5th c.	CL
99. [Α]φρηΔ[δίτε]	(1)(6)	Graef II 1482	5th c.	CL
100. Λυσάρισστη		SEG 21,1047	5th/4th c.	Ph.
101. ὥςς πλείστα		IG II ² 47,33	begin. 4th c.	Inscr. exam.
102. 'Ασκληπιῷ		IG II ² 4961,4	begin. 4th c.	CL
103. 'Ασκληπιῷ		IG II ² 4961,5	begin. 4th c.	CL
104. 'Αριστοφάνης	(3)	IG II ² 6566,1 (p. 891)	begin. 4th c.	—
105. 'Αριστοφάνης	(3)	IG II ² 6566,4 (p. 891)	begin. 4th c.	—
106. <Η>φαισ- στοκράτους		IG II ² 6566,5 (p. 891)	begin. 4th c.	CL
107. Νικοστράτη	(3)	IG II ² 12300	begin. 4th c.	—
108. Φρεσσεφώνες	(1)(5)	Def. 102,a 4	begin. 4th c.	FS
		(Wilh., p. 112)		
109. 'Αριστώννυμο(ς)	(1)(5)	Def. 102,b 4	begin. 4th c.	FS
		(Wilh., p. 112)		
110. 'Αλκισσισ	(3)	IG II ² 4023,2	400/350	—
111. 'Ασκληπιῷ		IG II ² 4966	400/350	CL
112. ἄλοιμῷ		IG II ² 1663,3	392/1	CL
113. χθόνιος	(1)(5)	CIG 538,1	380 (Def. 101)	CL
114. ἀν[ά]θεσσιν		IG II ² 1635,72	374/3	CL
115. εἰμυ[ί]	(1)	Hesp. Suppl. 7,31,1	ca. 375/50	Ph.
116. Λέσσοβον	(5)	IG II ² 107,32	368/7	CL
117. Σοντι		SEG 12,100,69	367/6	Ph.
118. 'Ασκληπιόδωρος		IG II ² 10019,1	365/40	CL
119. τὴν ἀλλήν		SEG 21,527,17	363/2	Ph.
120. συμβαλλομένος		SEG 21,527,55	363/2	Ph.
121. 'Ασκληπιῷ		IG II ² 4355,1	before 350	CL
122. Τιμοστράτο		Hesp. Suppl. 7,3,2,5	before 350	Ph.
123. εἰς τό		IG II ² 1177,15	ca. 350	CL
124. [Α]λσσχ[ύ]λος		IG II ² 2387,1	ca. 350	CL
125. [Α]σκληπι[ῶν]		IG II ² 4377,1	ca. 350	CL
126. ἐκ Πηλῆων		IG II ² 4911,2	ca. 350	Comm.
127. Μυσός	(5)	IG II ² 9980	ca. 350	Comm.
128. Πρεσβίαις		IG II ² 11840a,2	ca. 350	CL

129. Φαλλ<α>νθο	(2)	SEG 14,156,1	ca. 350	Ph.
130. [ε]ραρισσταῖς		Hesp. Suppl. 9,13,26,5	ca. 350?	Ph.
131. νυλλο[ς]		IG II ² 1674,6	after 350	Comm.
132. τάς μέν		IG II ² 2496,14	after 350	CL
133. Σίπνιος	(5)	IG II ² 10362,2	after 350	Comm.
134. Σήστιος	(5)	IG II ² 10263,2	after 350	CL
135. 'Επιθάλλου		SEG 14,251,1	after 350	Ph.
136. ἐκκεπε[ολιόρ- κηνται]		IG II ² 211,3	348/7?	CL
137. δημάρχου σστήσαι	(7)	IG II ² 2492,22	345/4	CL
138. 'Εσσι[ιαιόθεν]		IG II ² 1699,3	343/2	CL
139.]σάμενος ν[		IG II ² 2493,21	339/8	CL
140. ἐκκ τ[ο]ῦ		IG II ² 2491,7	ca. 335/25 (SEG 23,94)	CL
141. εἰς τόν		IG II ² 1184,20	334/3	CL
142. Χ[ο]λλαργέα		IG II ² 1576,28	ca. 330	CL
143. μισσός		IG II ² 1672,11	329/8	CL
144. ἐγγ δακτύλων		IG II ² 1672,147	329/8	Inscr. exam.
145. λιθολογήσαντι		IG II ² 1672,189	329/8	Inscr. exam.
146. 'Ακεσσοθέμι[δος]		IG II ² 1933,12	ca. 330/20	Inscr. exam.
147. Δήμητ[ε]ρ[ε]ος		IG II ² 1187,26	319/8 (SEG 22,118)	CL
148. ἐμπροσθεν		SEG 21,312,12	319/8	Ph.
149. ἐμ]προσθεν		SEG 21,318,11	318/7	Ph.
150. 'Εφοδίωνος Σονιῶς		IG II ² 7425,2	just before 317/6	Inscr. exam.
151. ἐποιήσαντο		IG II ² 1480,8	ca. 314/3?	CL
152. δι[κα]ιοσ- [σ]ύ[νη]ς	(3)	IG II ² 488,15	304/3	CL
153. κα[[λ]]λῶς		IG II ² 1159,9	303/2	CL
154. εἰς τήν		IG II ² 508,8	end 4th c.	CL
155. ἐκ τῶν		IG II ² 533,2	end 4th c.	CL
156. 'Ασκληπιῶι		IG II ² 4412,2	end 4th c.	CL
157. χρηστή		IG II ² 12816,2	4th c.	Inscr. exam.
158. πρὸς τὸς κάτω	(1)(5)	Hesp. 20,223,2	4th c.	Ph.
159. 'Αρκέσσας		IG II ² 6160,1	4th c.?	CL
160. Θεσπική	(5)	IG II ² 8834,2	4th c.?	CL
161. ἀν<ύ>σαι	(1)	Def. 94,14	4th c.? (Wilh, p. 110)	CL
162. 'Αρ[χ]εῖβιος	(1)	Def. 29,8	4th/3rd c.	FS
163. ὅλλου[ς]	(1)	Def. 77,b 5	4th/3rd c.	FS
164. εἴ τις	(1)	Def. 158,11	4th/3rd c.	CL

129. ΦΑΛΛΑΝ stone.
161. Cf. Rab., p. 22,

165. στήλ[[λ]]ην		IG II ² 660,44	just after 300 (SEG 24,115)	CL
166. Περισστερά	(3)	SEG 21,1060,1	just after 300	—
167. 'Αγγνούσιος		IG II ² 5260,3	after 300	CL
168. 'Ασκληπιῶι		IG II ² 4439,2	begin. 3rd c.	CL
169. ἐν σαντιδίῳ		IG II ² 1534,69	291/0 (SEG 16,118)	CL
170. ἐσσεφά[ν]ωσαν		IG II ² 656,8	288/7	CL
171. ἐκ τῶν		IG II ² 657,40	287/6	CL
172. ἐκ τοῦ		IG II ² 1283,7	261/0 (SEG 25,99)	Ph.
173. πορεύεσθαι		IG II ² 1283,16	261/0 (SEG 25,99)	Ph.
174. ὑποδέχεσθαι		IG II ² 1283,17	261/0 (SEG 25,99)	Ph.
175. Κλεινίππου	(3)	IG II ¹ 329,27	256/5 (SEG 21,377)	CL
176. φιλοτίμως[[ς]] καί		IG II ² 1247,8	ca. 250	CL
177. φ]ιάλλιον	(3)	IG II ² 1512,6	ca. 250	—
178. προσ]έτιττον		IG II ² 776,13	ca. 240	CL
179. γ]ράψασθα[ι]		IG II ² 808,18	239/29	CL
180. ἔκκει		Hesp. Suppl. 1,73,29,4	228/7	Ph.
181. ὠσ[[σ]]α[ύ]τως		IG II ² 847,21	ca. 215/4	CL
182. Διομεές		IG II ² 5992,2	3rd c.	CL
183. Φ<λ>υές		IG II ² 7662,3	3rd c.	CL
184. 'Ασκληπιάδης	(5)	IG II ² 9969,3	3rd c.	Inscr. exam.
185. 'Ιστορία		IG II ² 11751,1	3rd c.	Comm.
186. 'Αρίστωνος		SEG 21,841,2	3rd c.	CL
187. 'Εσστιαίου	(5)	BCH 87,700	3rd c.	CL
182. = Διομεεύς.				
183. = Φλυεύς.				
180. Norm: <σ>. ⁸⁰ Var.: <Θ>.				
1. Πισί<τ>ρατος	(1)(2)	Hesp. Suppl. 8,405	7th c./ ca. 550 (p. 407)	Ph.
2. ΟΙΕΥ<Σ>	(1)(2)(5)	CVA F 1, III Hd, pl. 5,6,14	600/575	CL
2. = Οινεύς.				

⁸⁰ All syngraphemes are comprised except <Φ>, <Β>, <Θ>, <Δ>, <Χ>, <Γ>, <Η>, and <Ζ>.

3. Κέ<v>τα[υρος]	(1)(2)	CVA GR 1, III Hf, pl. 1,1—2	600/575	
4. 'Α<μ>φιτρίτε	(1)(2)	Kr. 162		Ph.
5. 'Αταλά<v>τε	(1)(2)(5)	Hopp., Bf. 150,2A	575/50	Spec. ph.
6. Νύ<μ>φαι	(1)(2)(5)	Hopp., Bf. 150,2A	ca. 570 (Cook, p. 73)	Ph.
7. ηευχσί<τ>ρα- το[ς]	(1)(2)(5)	Hopp., Bf. 150,2B	ca. 570 (Cook, p. 73)	Ph.
8. Δαμα- σι<τ>ράτε	(1)(2)(5)	Hopp., Bf. 150,2B	ca. 570 (Cook, p. 73)	Ph.
9. Καλιγόρα<ς>	(1)(2)	CVA F 4, III He, pl. 19,1—2	560/30	Ph.
10. Στεσαγόρα<ς>	(1)(2)	ARV 1699,1609	560/30	CL
11. Γερύονε<ς>	(1)(2)	Hopp., Bf. 100,6	560/30	CL
12. 'Ονετορίδε<ς> καλός	(1)(2)	Kr. 185	560/30	FS
13. Δυ<σ>νεικέ- τ<ο>υ	(1)(2)(6)	CVA GB 1, III He, pl. 6,2 a—b	ca. 550	CL
14/15. Θανό<v>- τοι<v>:	(2)	IG I ² 1016,2	ca. 550/40	CL
16. Πάρι<ς> καλός	(1)(2)	CVA E 1, III He, pl. 8,2	550/25	FS
17. Κινία<ς>	(1)(2)	CVA E 1, III He, pl. 8,2	550/25	FS
18. Τιμαγόρα<ς>	(1)(2)	CVA F 9, III He, pl. 63,1—4	550/25	CL
19. Τιμυγόρα<ς>	(1)(2)	CVA F 9, III He, pl. 64,1—3	550/25	Ph.
20. τε<v>δί	(1)(2)	CVA GB 6, pl. 19,2A	550/25	CL
21. τε<v>δ[i]	(1)(2)	CVA GB 6, pl. 19,2B	550/25	CL
22. τε<v>δί	(1)(2)	ABV 171,5A	550/25	Ph.
23. τε<v>δί	(1)(2)	ABV 171,5B	550/25	Comm.
24. τι<μ>ο[κ]λείδες	(1)(2)	ABV 174,6	550/25	CL
25. Τα<λ>είδες	(1)(2)	ABV 175,18	550/25	CL
26. καρπό<v> τονδ<ι>	(1)(2)	ABV Paralip. 70	550/25	CL
27. σφί<v>χς	(1)(2)(5)	Hopp., Bf. 60,3A	550/25	FS
28. σφί<v>χς	(1)(2)(5)	Hopp., Bf. 60,3A	550/25	FS
29. σφί<v>χς	(1)(2)(5)	Hopp., Bf. 60,3B	550/25	FS
30. σφί<v>χς	(1)(2)(5)	Hopp., Bf. 60,3B	550/25	Comm.
31. τε<v>δί	(1)(2)(5)	Hopp., Bf. 322,3	550/25	Spec. ph.

32. 'Αχιλεύ<ς>	(1)(2)	Gerh., AV pl. 205	550/25	FS
33. ἀνφορέα	(1)(2)	Graef II 1292	550/00	FS
34. Στεσαγόρα<ς>	(1)(2)	CVA DK 3, pl. 139,1 a—b	530/00	CL
35. Φι<v>τίας	(1)(2)	CVA GB 7, III Ic, pl. 70,1	530/00	CL
36. Μ<v>έσιλα	(1)(2)	CVA GB 8, III He, pl. 88,2	530/00	Ph.
37. ηεραι<λ>ες	(1)(2)	CVA I 25, III I, pl. 1,1—3	530/00	CL
38. Λεοκ<ρ>άτες	(1)(2)	ABV 337,24	530/00	CL
39. Νικόσ<τ>ρατος	(1)(2)	ABV 671	530/00	CL
40. Χαχ<ρ>υλίων	(1)(2)	ARV 58,51	530/00	CL
41. Μέμ<v>ον	(1)(2)	ARV 64,98	530/00	CL
42. Μέμ<v>ον	(1)(2)	ARV 66,128	530/00	CL
43. Κατά<v>δρα	(1)(2)	Hopp., Rf. I 144,4	530/00	CL
44. hoίνο<ς>	(1)(2)	Hopp., Rf. I 296,3	530/00	Spec. ph.
45. Νύ<μ>φες	(1)(2)	Hopp., Rf. II 257,29	530/00	CL
46. δλυ<μ>- πιόν[ι]κος	(1)(2)(5)	SEG 16,38	525/00	Ph.
47. Α<ι>σχ<ρ>ίον	(1)(2)	CVA GB 3, pl. 1,2	ca. 520/10	CL
48. οϊκτιρο<v> προσορῶ[v]	(2)	SEG 22,78,1	ca. 510	Ph.
49. ηερ<μ>ες	(1)(2)	CVA D 12, pl. 161,1—2	ca. 510	FS
50. ho παϊ<ς> καλός	(1)(2)	CVA A 1, pl. 3,1,5	ca. 510	Ph.
51. καλό<ς>	(1)(2)	Richt., MM 22,7	ca. 510/00	CL
52. καλό<ς>	(1)(2)	Richt., MM 22,7	ca. 510/00	CL
53. 'Ολυ<μ>πιό- [δορος]	(1)(2)	Graef II 636	ca. 510/00	Ph.
54. 'Αγασι- κ<ρ>άτ[ες]	(1)(2)	SEG 17,14	end 6th c.	Ph.
55. 'Ολυ<μ>πιόδο- ρος	(1)(2)	ABV 365,65	end 6th c.	CL
56. 'Ορθαγόρα<ς>	(1)(2)	ABV 672	end 6th c.	Ph.
57. Σμικ<ρ>οι	(1)(2)	ARV 18,1	end 6th c.	Spec. ph.
58. 'Αγασικ<ρ>άτες	(1)(2)	ARV 20	end 6th c.	Ph.
59. Ναυσί<τ>ρατος	(1)(2)	ARV 26,3	end 6th c.	CL
60. Λέα<γρ>ος	(1)(2)	ARV 1593,37 bis	end 6th c.	CL
61. Λέα<γρ>ος	(1)(2)	ARV 1593,39	end 6th c.	CL

60–61. The *gamma* has been written upside down and looks like an OA *lambda*.

62. Λέ<α>Υ<ρ>ος	(1)(2)	ARV 1594,49			
63. Χσένο<ν>	(1)(2)	Hopp., <i>Rf.</i> I 406,16 B	end 6th c. end 6th c.	CL CL	
64. Σό<σ>τρατος	(1)(2)(5)	Hopp., <i>Rf.</i> II 365,11 A	end 6th c.	Spec. ph.	
65. χόρο<ς>	(1)(2)(5)	Hopp., <i>Rf.</i> II 416,1	end 6th c.	FS	
66. τέ<ν>δε	(1)(2)	CVA USA 11, pl. 13,19	blackf.	Ph.	
67. υποτέλε<ς>	(1)(2)	ABV 668	blackf.	Spec. ph.	
68. τέ<ν>δε	(1)(2)	Kr. 89,61	blackf.	Comm.	
69. Όλυτεύ<ς>	(1)(2)	Kr. 185	blackf.	Comm.	
70. έ παυ<ς> καλέ	(1)(2)	Kr. 188	blackf.	CL	
71. θανό<ν>τι	(2)	SEG 25,60	6th/5th c.	CL	
72. Όλυ<μ>πιό- δορος	(1)(2)	ARV 1699,1604	6th/5th c.	CL	
73. 'Α<μ>φιάρεος	(1)(2)	Kr. 122,103	6th/5th c.	CL	
74. Αί<ν>τος	(1)(2)	Kr. 162	6th/5th c.	CL	
75. νύ<ν> γε	(1)(2)	CVA I 13, III I, pl. 31,2	ca. 500	CL	
76. Κύ<κ>νος	(1)(2)	CVA I 42, pl. 38,1—2	ca. 500	Ph.	
77. άπαρχέ<ν> εργον	(1)(2)	Graef II 1354	ca. 500	Ph.	
78. Φαλά<ν>θ[ο]	(1)(2)	Hesp. Suppl. 8, 400,14c,2	begin. 5th c.	Ph.	
79. Χαίρια<ς> καλός	(1)(2)	ARV 176,2	500/475	FS	
80. Μέν<ν>δρος	(1)(2)	ARV 246,8	500/475	CL	
81. ho παί<ς> καλός	(1)(2)	ARV 246,8	500/475	CL	
82. Δάμα<ς> καλός	(1)(2)	ARV 385,228	500/475	FS	
83. Χαιρέστ<ρ>ατος	(1)(2)	ARV 427,1	500/475	CL	
84. Στεσαγόρα<ς> καλός	(1)(2)	ARV 1609,2	500/475	CL	
85. Παναίτιο<ς>	(1)(2)	Hopp., <i>Rf.</i> I 421,36	500/475	CL	
86. Τιμά<ν>δρα	(1)(2)	Hopp., <i>Rf.</i> II 42,4	500/475	CL	
87. ό παί<ς> καλός	(1)(2)(3)	Kr. 185	500/475	—	
88. Χαιρέστρα- το<ς>	(1)(2)	Hartw., pl. 22,2	500/475	FS	
89. 'Εγέστ<ρ>ατος	(1)(2)	Hesp. Suppl. 8,398,10 b	begin. 5th c.	FS	
90. Τυ<ν>τάρεος	(1)(2)	CVA D 21, pl. 84,1—2	490/80	FS	
91. Νικο<σ>τράτε	(1)(2)	Richt., <i>MM</i> 72,52	ca. 490/80	FS	

92. Νικο<σ>θένες	(1)(2)	Richt., <i>MM</i> 72,52	ca. 490/80	FS	
93. 'Αρι<σ>τόνυ- μος	(1)(2)	Hesp. 19,385,17	483/2? (p. 377)	Ph.	
94/95. ταί<ς> Νύ<μ>φαισιν	(2)(5)	IG I ² 778,3	before 480	Comm.	
96. ά<μ>φί	(1)(2)	CVA D 21, pl. 77,1—2	just before 480	Ph.	
97. [M]ένο<ν> Γαργέτ[τιος	(1)(2)	Peek 70,112	ca. 480 (<i>Hesp.</i> 24,288, n. 13)	Ph.	
98. νύ<μ>φε	(1)(2)(3)	CVA A 1, pl. 39,1—2	480/70	—	
99. 'Αρη<ς>	(1)(2)	Hopp., <i>Rf.</i> I 10,1	475/50	CL	
100. Μι<λ>τιάδο	(1)(2)	Peek 59,51	461 (p. 62)	Ph.	
101. Κίμο<ν> Μ<ι>λ[	(1)(2)	Peek 59,53	461 (p. 62)	Ph.	
102/3. έλε<γ>χ- θέν<τ>ον	(2)(3)	ATL II D 10,12	453/2	CL	
104. ά<ρ>ισστ[α	(2)(3)	ATL II D 10,21	453/2	CL	
105. Λυσι<σ>τράτο	(2)	IG I ² 1003,2	before 450	CL	
106. 'Α<ν>δρομάχε	(1)(2)	Kr. 161,142	redf.	CL	
107. Λά<μ>πον	(1)(2)	CVA GB 4, III Ic, pl. 22,4,a—c	450/20	CL	
108. Κίσσο<ς>	(1)(2)(5)	Hopp., <i>Rf.</i> I 345,2	450/20	CL	
109. χόρο<ς>	(1)(2)(5)	Hopp., <i>Rf.</i> I 346,3	450/20	CL	
110. χόρο<ς>	(1)(2)(5)	Hopp., <i>Rf.</i> I 346,3	450/20	CL	
111. he<ρ>μεις	(1)(2)	Hopp., <i>Rf.</i> II 382,5	450/20	CL	
112. Με<ν>δαῖοι	(2)(5)	ATL II 7, IV 36	448/7	CL	
113. έ<ν>τιν' άν	(2)	IG I ² 186/7, B 4	447/30 (<i>AJA</i> 1889,310)	Comm.	
114. έ<ν> στέλει	(2)	IG I ² 39,59	446/5	CL	
115. έ<ν> στέλει	(2)	ATL II D 17,59	446/5	Ph.	
116. 'Αχα<ρ>νε<ύ>ς	(1)(2)	<i>Ath. Mitt.</i> 40,12,18	443 (Peek, p. 84,160)	Ph.	
117. μεγάλε<ν> τε	(2)	IG I ² 530,3	before 445	Comm.	
118. Χαιρέδεμο<ς> Φιλέα	(2)	IG I ² 661,1	before 445	CL	
119. τέ<ν> στέλεν	(2)	IG I ² 56,28	ca. 430 (<i>SEG</i> 10,55)	CL	
120. θ<ρ>αντίτιδες	(2)	IG II ² 1604,83	ca. 430 (<i>SEG</i> 10,353/5)	CL	
121. έ<ν> στέλει	(2)	IG I ² 60,14	427/6	CL	
122. έ<ν> στέλει	(2)	ATL II D 22,22	427/6	Ph.	

123. ἐ<ν> σ[τέ]λει (2)	SEG 23,18,25	426/5	Ph.
124. τῶ<ν> ἀρχαίων (2)	IG I ² 324,119	426/2	CL
125. ἐ<ν> στέλει (2)	IG I ² 82,16	421/0	CL
126. ἐ<ν> στέλει (2)	SEG 3,18,3	ca. 420	CL
127. ἐ<κ> Ζ[καμβονιδῶν] (1)(2)	Hesp. 21,3,9,2	417 or 415 (p. 6)	Ph.
128. ἐ<ν> στήληι (2)	IG II ² 27,9	416/5 (SEG 10,109)	CL
129. [Φυλά]σιο<ς> κα[ί] (2)(3)	IG I ² 270,131	416/5	CL
130. h[ο]ῖ<ς> Λυσικλῆς (2)	IG I ² 270,132	416/5	—
131. τὰ<ς> ναῦς (2)	IG I ² 302,66	415/4	CL
132. ἐλλ Λε<λ>ά[ντοι] (2)	SEG 13,13,178	415/3	CL
133. συ<ν>οικία (2)	SEG 13,15,11	415/3	Ph.
134. ἐ<ν> Λυσαρχε[] (2)	IG I ² 325,14	414/3	Ph.
135. ἐ<ν> στήληι (2)	IG I ² 108,34	410/09	CL
136. ἐ<ν> στήλ[η]ι (2)	IG I ² 108,36	410/09	CL
137. ἐ<ν> στέλει (2)	IG I ² 115,7	409/8	CL
138. ἐ<ν> Σκαμβονί (2)	IG I ² 373,106	409/8	CL
139. τὸ<ς> παρὰ (2)	IG I ² 374,221	409/8	CL
140. Χαι<ρ>ίππο (2)	IG II ² 1951,71	406 (SEG 10,356)	Inscr. exam.
141. πρᾶσι<ς> ἔστο (2)	SEG 10,142,7	ca. 406	Comm.
142. Φι<ν>τί[ας] (2)	SEG 10,336,5	before 403	Ph.
143. τ[ο]ῖ<ς> δόδεκα (2)(3)	IG I ² 829,2	before 403	CL
144. Λά<μ>πο<ν> (1)(2)	Kr. 163	end 5th c.	CL
145. Σπί<ν>θαρος (2)(5)	IG II ² 12643	5th c.	CL
146. ἔπεα πτερύε<ν>τα (1)(2)	SEG 1,12,3	5th c.	CL
147. [Κα]λ-λικ<λ>είδης (2)	IG II ² 2364,8	ca. or just before 400	Inscr. exam.
148. Τιμοκ<ρ>άτες (1)(2)	ARV 1610,2	5th c.?	CL
149. Λαμπ<τ>ρίας (2)	IG II ² 3029,3	begin. 4th c.	CL
150. Ἰσθ<μ>ια (2)	IG II ² 3123,2	begin. 4th c.	Ph.
151. Ἡγήσα<ν>-δρ<ο>ς (2)	IG II ² 11564	begin. 4th c.	CL
152. οἰκ<τ>ρά (2)	IG II ² 13087,2	begin. 4th c.	Comm.
153. ἄν μή (2)	SEG 23,76,6	begin. 4th c.	Comm.
154. ἐσ<τ>ί (1)(2)(5)	Def. 66,b 1	begin. 4th c.	FS
155. Συρί<σ>κο (1)(2)(5)	Def. 70,4	begin. 4th c.	CL
156. Ὀφιλήμην<ν> καί (1)(2)(5)	Zie. I 18,12	(Zie. I p. 118)	CL

144. The last letter looks like a sigma.

157. Βα<κ>χ[δ]α (1)(2)(5)	Zie. I 18,7	begin. 4th c. (p. 118)	CL
158. πα<ρ>' ἡρώων (1)(2)(5)	Zie. I 18,10	begin. 4th c. (p. 118)	CL
159. πυρ[ρι]χί-σταῖ<ς> βοῦς (2)	IG II ² 2311,72	400/350	CL
160. Ἀγε<λ>ώλωι (2)(3)	IG II ² 4566,1	400/350	CL
161. Νύ<μ>φαι[ς] (2)(5)	IG II ² 4650,1	4th c.	Comm.
162. εὐορκῶ<ν>τι (2)	IG II ² 1237,112	396/5	CL
163. ἐ<ν> στήληι (2)	IG II ² 25,8	387/6 or 377/6 (SEG 15,86)	CL
164. Σκα<μ>βω(νί-δης) (1)(2)	BCH 87,668	378/30 (p. 657)	Ph.
165. ἐ<ν> στήληι (2)	IG II ² 141,14	376/60	CL
166. ἐ<π>ίχα[λκοι] (2)	IG II ² 1421,122	374/3 (SEG 21,549)	CL
167. τοῦ<ς> ἐκ[γόνους] (2)	IG II ² 105,28	368/7	CL
168. π<λ>άστρα (2)	IG II ² 1425,308	368/7	Inscr. exam.
169. Ἀρχέστ<ρ>ατος (2)	IG II ² 1609,84	366/5 (SEG 25,184)	CL
170. τῇ<ς> ἐφ' (2)	SEG 21,527,94	363/2	Ph.
171. Λαμπ<τ>ρ (2)	IG II ² 1612,370	356/5	CL
172. [δ]ίπ[ο]δ[α]ς<ς> πάχος (2)	IG II ² 1666,A 99	353/2	Inscr. exam.
173. ἐλ[ε]φάντι<ν>α (2)	IG II ² 1438,49	ca. 352/1 (SEG 19,129)	CL
174. Αἰ<σ>χρωνος (2)	IG II ² 2370,4	before 350	CL
175. Μ<ν>ησίβολος (2)	IG II ² 2370,14	before 350	CL
176. ἐκ<τ>ῶμ (2)	IG II ² 4357,1	before 350	CL
177. Σωσ<τ>ράτο (2)(5)	IG II ² 8871	before 350	CL
178. Φι<λ>άγρου (2)	IG II ² 11962	before 350	CL
179. τί<τ>θη (2)(3)	IG II ² 12559,2	before 350	—
180. Λευκό<ν>οιον (2)	IG II ² 1582,134	ca. 350 (SEG 17,40)	CL
181. Σωφίλου (2)	IG II ² 7807,1	ca. 350	CL
182. Θε<ρ>σίλοχος (2)	IG II ² 11673a	ca. 350	CL
183. Λυσισ<τ>ράτη (2)	IG II ² 12013	ca. 350	CL
184. Νι<κ>αρέτη (2)(3)	IG II ² 12427a	ca. 350	—
185. Δημοσ<τ>ρ[ά-τη] (2)	IG II ² 12973,1	ca. 350	CL
186. μι<σ>θῶσαι (2)	SEG 24,151,8	ca. 350	CL
187. ἐ<ν> Λουσίαι (2)	SEG 21,578,B 4	ca. 350	Ph.
188. Μένωνο<ς> Ἀχαρ (2)	SEG 21,578,B 5	ca. 350	Ph.
189. τῇ<ν> Λιτίου (1)(2)(5)	Peek 97,9,2	ca. 350	Ph.
190/2. τε<ν> ἐργα-σία<ν> τέ<ν> (1)(2)(5)	Peek 97,9,6	ca. 350	Ph.

193. τή<ν> ψυχ[ήν]	(1)(2)(5)	Peek 97,9,7	ca. 350	Ph.
194. Ἑρμῆ<ν> τ<όν>	(1)(2)(5)	Peek 97,9,8	ca. 350	Ph.
195/6. τή<ν> ψυχῆ<ν>	(1)(2)(5)	Peek 97,9,15	ca. 350	Ph.
197. τή<ν> [γ]λῶταν	(1)(2)(5)	Peek 97,9,16	ca. 350	Ph.
198. τή<ν> βουλέν	(1)(2)(5)	Peek 97,9,16	ca. 350	Ph.
199. τή<ν> Λιτίου	(1)(2)(5)	Peek 97,9,16	ca. 350	Ph.
200. τή<ν> Λιτίου	(1)(2)(5)	Peek 97,9,16	ca. 350	Ph.
201. Κα<ρ>υστ[ίωι]	(2)	IG II ² 1669,32	ca. 350	Ph.
202. Χα<ρ>ίλεω	(2)	IG II ² 6458,1	after 350	Ph.
203. Κτησιμ<λ>ῆς	(2)	Hesp. 19,226,13,115	after 350 ca. 350/44	CL
204. φυτεύοντα<ς> καί	(2)	IG II ² 2492,4	345/4	CL
205. τή<ν> γραμματ[έα]	(2)	IG II ² 222,27	ca. 344/3	CL
206. ναῦ<ν> σκεύη	(2)	IG II ² 1622,639	ca. 342/1	CL
207. ναῦ<ν> σκεύη	(2)	IG II ² 1622,678	ca. 342/1	CL
208. τοῦ<ς> δημότας	(2)	IG II ² 1183,21	after 340	CL
209. πρότερο<ν> ἀφείναι	(2)	IG II ² 1183,24	after 340	Inscr. exam.
210. τοῦ<ς> ιερέα[ς]	(2)	IG II ² 1183,28	after 340	Inscr. exam.
211. σιδηρᾶ<ν> λαβήν	(2)	IG II ² 1533,34	338/7	Inscr. exam.
212. Καλλισχ<ρ>ου	(1)(2)	Hesp. 19,263,20,3	338/7?	CL
213. τοῦ<ς> μέν	(2)	IG II ² 1675,11	ca. 337/6	Ph.
214. ἑ<ν> στήληι	(1)(2)(3)	IG II ² 298,3	before 336/5	CL
215. Ῥαμ<ν>ούσι	(2)	IG II ² 1623,48	333/2	CL
216. σ<τ>λεγγί<δε>ς	(2)(3)	IG II ² 1652,9	333/2	CL
217. ἑ<ν> Σκαμ	(2)	SEG 18,36,B 341	ca. 330/10	CL
218. τή<ν> στρογγύλον	(2)	IG II ² 1672,20	329/8	CL
219. οἰκοῦντο<ς> εἰς	(2)	IG II ² 1672,26	329/8	CL
220. οἰκοῦ<ν>τος	(2)	IG II ² 1672,65	329/8	CL
221. οἰκοῦ<ν>τι	(2)	IG II ² 1672,67	329/8	CL
222. οἰκοῦ<ν>τι	(2)	IG II ² 1672,75	329/8	CL
223. οἰκοῦ<ν>τι	(2)	IG II ² 1672,84	329/8	CL
224. οἰκοῦ<ν>τι	(2)	IG II ² 1672,88	329/8	CL
225. οἰκοῦ<ν>τι	(2)	IG II ² 1672,96	329/8	CL
226. ἐπισπα<σ>τῆ- ρ[ες]	(2)	IG II ² 1672,123	329/8	CL
227. ταῖ<ς> θύραις	(2)	IG II ² 1672,162	329/8	Comm.
228/9. ταῖ<ς> θύραι<ς> ταῖ[ς]	(2)	IG II ² 1672,162	329/8	Inscr. exam.
230. ἑ<ν>στήσαντι	(2)	IG II ² 1672,164	329/8	Inscr. exam.

231. τοῖ<ς> δημοσίοις	(2)	IG II ² 1672,167	329/8	Inscr. exam.
232. οἰκοῦ<ν>τος	(2)	IG II ² 1672,174	329/8	CL
233. ἑ<ν> Σκαμβωνιδ[ω]ν	(2)	IG II ² 1672,179	329/8	CL
234. ἑ<ν> Σκαμ	(2)	IG II ² 1672,238	329/8	CL
235. ἑ<ν> Σκαμβ[	(2)	IG II ² 1672,241	329/8	CL
236. σ<τ>ατη[γ]ός	(2)	IG II ² 1672,275	329/8	CL
237. σ<τ>ατηγός	(2)	IG II ² 1672,276	329/8	CL
238. ἐκτεῦ<ς> πενθ'	(2)	IG II ² 1672,282	329/8	CL
239. τῆς ἱερείας<ς> καί	(2)	IG II ² 1672,305	329/8	CL
240. συ<μ>βαλόντι	(2)	IG II ² 1673,14	327/6 (SEG 15,128)	CL
241. πέ<ν>τε	(2)	IG II ² 1673,15	327/6 (SEG 15,128)	CL
242. οἰκοῦ<ν>τος	(2)	IG II ² 1673,29	327/6 (SEG 15,128)	CL
243. ἑ<ν> στήληι	(2)	IG II ² 1199,13	ca. 325/4	CL
244. ἑ<ν> στήληι	(2)	IG II ² 1199,13	ca. 325/4	CL
245. σ<τ>ατεύεται	(2)	Rab., 21 (Def. 55,a 9)	prob. 325/4 (Wilh., pp. 107 f.)	Comm.
246. Εὐδράω<ν> σκεύη	(2)	IG II ² 1632,250	ca. 323/2	CL
247. Ἀφιδναῖο<ς> Φρασίας	(2)	IG II ² 1468,3	321/0	CL
248. ὑγιή<ς> πο- δανιπτηρ[ίδιον]	(2)	IG II ² 1469,98	320/19	CL
249/50. μὴ κόπτειν	(2)	IG II ² 1362,5	end 4th c.	CL
251. φ]έρε<ν> ξύλα	(2)	IG II ² 1362,5	end 4th c.	CL
252. πενήκοντα	(2)	IG II ² 1362,15	end 4th c.	CL
253. Παρμένοντο<ς>	(2)(5)	IG II ² 9984,2	end 4th c.	CL
254. Ἀγ<κ>υλῆθεν	(2)	IG II ² 5242,3	4th c.	Comm.
255. Χαιρεσ<τ>ράτη	(2)	IG II ² 13035	4th c.	CL
256. τή<ν> χαλκήα	(1)(2)(5)	Hesp. 20,223,1	4th c.	Ph.
257. Σωσία<ν> τόν	(1)(2)(5)	Hesp. 20,223,4	4th c.	Ph.
258. ἐργασία<ν> καί	(1)(2)(5)	Hesp. 20,223,5	4th c.	Ph.
259. νοῦ<ν> θυμόν	(1)(2)	Def. 51,2	4th c.	CL
260. συ<ν>ηγόρ[ους]	(1)(2)	Def. 65,7	4th c. (Wilh., p. 119)	CL
261. αὐ<τ>ῆς	(1)(2)	Def. 89,b 3	4th c.	CL
262. καί <σ>ῶμα	(1)(2)	Zie. I 15,9	4th c.	CL
263. Φα<λ>ηρεύ[ς]	(2)	IG II ² 7597	4th c.?	Comm.
264. Οἰνά<ν>θης	(2)	Hesp. 21,372,18,3	4th/3rd c.	Ph.

254. May be read Ἀγ<ρ>υλῆθεν.
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265. ἐ<ν> ἀκρ[οπόλει]	(2)	<i>Hesp.</i> 40,197,50,3	4th/3rd c.	
266. Ναυσίστ<ρ>ατος (1)(2)		<i>Def.</i> 5,1		Ph.
267. Κράτε<ρ>ος (1)(2)(3)(5)		<i>Def.</i> 23,14	4th/3rd c.	CL
268. Πα<μ>φίλου (1)(2)		<i>Def.</i> 56,2	4th/3rd c.	—
269. α<ύ>τὸ<ς> καί (1)(2)(3)		<i>Def.</i> 59,6	4th/3rd c.	Comm.
270. Ὠφι<λ>ίμη (1)(2)(3)(5)		<i>Def.</i> 71,1	4th/3rd c.	—
271. Ἀρτεμί<ν>τόν (1)(2)(5)		<i>Def.</i> 75,a 3	4th/3rd c.	—
272. ἐ<ρ>γάσσεται (1)(2)		<i>Def.</i> 90,a 2	4th/3rd c.	CL
273. πρὸ<ς>τόν (1)(2)		<i>Def.</i> 90,a 3	4th/3rd c.	CL
274. τῇ<ν> τήχνη[ν]	(1)(2)	<i>Def.</i> 110,10	4th/3rd c.	CL
275. π<ρ>ός (1)(2)(3)		<i>CIG</i> 1034,7		CL
276. τῇ<ν> τα{ι}χίστην	(1)(2)(3)	<i>CIG</i> 1034,10	4th/3rd c.	CL
277. ἡμερῶ<ν> τεταράκοντα	(1)(2)(3)	<i>CIG</i> 1034,15	4th/3rd c.	CL
278. τῇ<ν> Πασιφάνου	(1)(2)	<i>Zie.</i> I 4,5		CL
279. τὸ<ν>χθόνι[ον] (1)(2)		<i>Zie.</i> I 16,b 5	4th/3rd c.	CL
280. τὰ<ς>κοι[νάς] (1)(2)(5)		<i>Zie.</i> II 6,a 5	4th/3rd c.	CL
281. ψυχῇ<ν>καί (1)(2)(3)(5)		<i>Zie.</i> II 13,b 4	4th/3rd c.	CL
282. Λαμπ<τ>ρίου (1)(2)(5)		<i>Zie.</i> I 10,14	ca. 300	—
283. τῇ<ς>εἰς (2)		<i>IG</i> II ² 1252,7	just after 300 (<i>SEG</i> 14,82)	CL
284. Χαιρέστ<ρ>ατος (2)		<i>SEG</i> 21,752,4	just after 300	Ph.
285. Ἐκφα<ν>τίδου (2)(3)		<i>SEG</i> 21,826,4	just after 300	—
286. Ἀντιφί<λ>ου (2)		<i>IG</i> II ² 6559,2	after 300	Comm.
287. Ἡρακ<λ>εώτης (2)		<i>IG</i> II ² 8706,3	after 300	CL
288. χρη<σ>τή (2)		<i>IG</i> II ² 11079,2	after 300	CL
289. Διογ<ν>ήτ[ου] (2)		<i>SEG</i> 14,81,7	264/3	Ph.
290. Πολυ<κ>λείδης (2)		<i>Hesp. Suppl.</i> 1,43,9,63	260/59?	Ph.
291. Μ<ν>ησίλοχος (2)(3)		<i>IG</i> II ¹ 329,21	256/5 (<i>SEG</i> 21,377)	CL
292. Χαλιέστ<ρ>ατος (2)(3)		<i>IG</i> II ¹ 329,34	256/5 (<i>SEG</i> 21,377)	CL
293. Λαμπ<τ>ρέως (2)		<i>IG</i> II ² 6684,3	ca. 250	Comm.
294. Μενέστ<ρ>ατος (2)		<i>IG</i> II ² 1958,20	after 250	CL
295. ἄρχοντο<ς>ἐπί (2)		<i>IG</i> II ² 847,1	ca. 215/4	Inscr. exam.
296. Φανοκ<λ>έους (2)		<i>IG</i> II ² 5434,4	3rd c.	CL
297. Νέα<ν>δρος (2)		<i>IG</i> II ² 6689,1	3rd c.	CL

Chapter 6

PHONETIC EVALUATION OF THE DATA

Methodological Preliminaries

In the phonetic evaluation of the data diachronic and synchronic methods will be used in combination. The method followed can be characterized as essentially synchronic, while diachronic aspects are employed as soon as this is required. Such a combination of aspects is natural, since the present investigation aims at an analysis of the phonetic pattern of the dialect at a defined point of time in the past. Cf. further below, p. 165, n. 83.

The orthographic data (cf. above, pp. 22, 50, 68 f.) can be looked upon as a substitute for the phonetic data that constitute the raw material for the phonetician when he analyses a spoken language. There are no special problems of synchronic phonology applied to historical languages except the problem of incomplete phonetic analysis.⁸¹ As soon as phonetic analysis cannot rely on the records of speech of native speakers it will be more or less defective and hypothetical. Any phonetic analysis of a historical stage of a language must be derived indirectly, primarily from graphemic data in that language, and secondarily from other evidence: orthophonic (cf. above, p. 22, n. 14) information, onomatopoeia, etc.

It is very important, then, to reduce this great disadvantage as far as possible. Before starting a phonetic description, all available phonetic information must have been acquired and evaluated. As

⁸¹ Cf. L. Hjelmslev, p. 109 "On peut observer que la phonémique des langues mortes ne pose aucun problème spécial. Elle dérive par nécessité, comme toujours, de la phonétique. Dans la mesure où l'on connaît la prononciation, on peut en dériver le système phonémique, conjectural au même degré, ou plus conjectural encore."

McIntosh, p. 32 "We can learn nothing from a text about the exact phonetic value"; p. 37 "... one can infer some but not all the facts about spoken language from written".

was pointed out above (pp. 15 f. and 46 f.), this demand has not yet been met by anyone dealing with Attic phonology. As far as I have been able to find, no phonologist has clearly put the question as to what material might have come to light during the 20th century, still less made a complete study of all that material. This fact, in combination with a tendency to rely almost entirely on the orthographic norm in the phonetic evaluation of written data, must of course produce descriptions quite different from those derived from an exhaustive study of orthographic variations.

Principles of Evaluation

A first prerequisite of an optimal evaluation of data is that the collection, organization and other treatment of the data to be evaluated have been performed in a correct and adequate way. It is to be hoped that the principles described and followed in the preceding chapter fulfil these requirements.

A second prerequisite of an optimal evaluation of data is that it is founded on defined principles and performed consistently according to these.⁸²

The evaluation will be based on the following principles:

⁸² One often meets rather curious offences against this principle, for instance: Kretschmer (p. 144) accepts two instances of <K> for <Γ> and (p. 235) two instances of <X> for <K> as being "kein einfacher Schreibfehler" (p. 144), and (p. 124) the few cases of ἐπολεον, Ἀθένεον induce positive conclusions, but the more numerous instances of <I> for <E(I)> (pp. 134 f.), <I> for <Γ> (pp. 119—121) etc. are looked upon either as original forms, assimilations or "blosse Schreibversehen" (p. 119).

To Mhs (p. 75, n. 651) the few instances of omission of <Γ> / [i] are enough to assume that a phonetic change had taken place, but the equally frequent instances of omission of <I> after <A>, <H>, <Ω> are looked upon as "blosse Versehen" or "Ausnahmen" (p. 67).

The most flagrant example of such inconsistent evaluation is found in the treatment of the orthographic variations with <Z> and <Σ>: Mhs (p. 88, 8) states without hesitation that the two earliest instances (known to him) of <ΣZ> or <Z> for <Σ> / [-m] dated 329 B.C. prove "Übergang von Zeta in den weichen s-Laut" from that year. This prompt and general conclusion is the more striking, seeing that the two instances are found in the same inscription (and even the same line) and in almost the same environment.

Principle 1

The more fixed the orthographic norm, the greater is the phonetic evidence of each fully valid instance of an orthographic variant.

This synchronic principle has already been presented above, p. 50.

As we have seen (pp. 52—54), however, we cannot as yet, for practical reasons, make full and differentiated use of this, but are compelled to use it only as a *basic principle* or lodestar.

From a variant comprising very few instances, so that its frequency rate may be supposed to fall within the margin of error, no conclusions, or only uncertain ones, can be drawn, unless such infrequent variants can be combined with others providing similar evidence, so that the total number of instances of those combined variants becomes significant. Cf. above, p. 63.

Principle 2

The probability of origin of phonetically caused orthographic variation, i.e. transposition, is proportional to a) the transpositional force of the phonetic change involved and b) the supply of graphemes or graphemic sequences apt to replace the orthographic norm, and inversely proportional to the degree of strictness of control of orthography.

This principle is essentially synchronic but contains a diachronic element implicitly, namely to the extent that we actually know what phonetic—phonemic changes may be expected.⁸³

The different types of phonemic changes have been clearly displayed by R. Jakobson, *TCLP* 4 (1931) 247—267, who also proposed special terms for the processes. These terms have not, as far as I know, been used in more recent works. Since, however, they seem to be adequate for the denotation of the main processes of phonemic change I reintroduce them here (in their English forms).

⁸³ In this chapter where the *phonetic* patterns are dealt with the diachronic aspect should be restrained but may of course be applied whenever this is required. Only in the *phonemic analysis* of the phonetic information (gained from orthographic data in this chapter and from other material in Chapter 7) that is performed in Chapter 8 the diachronic aspect holds a central position as a theoretic principle of the analysis (*Principle 5*, p. 283).

During a period from one point of time to another, a phonemic system may undergo the following three types of phonemic change:⁸⁴

Dephonologization (Entphonologisierung), i.e. loss of phonemes, most commonly through merger, e.g. Attic /e:/ > /i:/, or through disappearance, e.g. Attic /h/ > MG [Ø].

Phonologization (Phonologisierung), i.e. origin of new phonemes, through the establishment of phonological oppositions in the later phonemic system between sounds that were allophones (of the same or different) phonemes in the earlier system. This may be the result of a split within one or more phonemes in the earlier system may give rise to phonemes belonging to different phonemes in the earlier system may either coalesce (e.g. through monophthongization) to give rise to a new phoneme in the later system, or else they may establish themselves (one of them or both) as phonemes in the later system.

Ex. 1: In the Attic diphthong /ai/ the two phonemes /a/ and /i/ were each represented by special allophones, probably of a more mid quality than in other positions, for instance, /[C]_[C]. Through a process of monophthongization the two allophones constituting the diphthong drew nearer to each other and coalesced into one sound: [æ:]. Since this sound can be described as a phoneme the process had thus created new phonological oppositions, /a/ : /æ/ and /i/ : /æ/ (and oppositions between the new phoneme /æ/ and the other phonemes in the system).

Ex. 2: The Attic phoneme /s/ is assumed to have had an allophone [z] / _[voiced C]. This allophone was assimilated to the allophone of /d/ that occurred after it so that a new sound [z(:)] was created. Being a new phoneme this sound absorbed the voiced allophone of /s/ and established a new phonological opposition /z/ : /s/.

In other words these allophonic changes created the new phonemes /æ/ and /z/ respectively, while the original phonemes /a/, /i/, /s/, and /d/ remained, although with a reduced frequency.

Rephonologization (Umphonologisierung), i.e. transformation of one or more phonemic distinctions into one or more others, e.g. the

⁸⁴ There are combinations between these three principal kinds of change; cf. Hoenigswald, pp. 77–81.

change of feature [back] > [front], as in Ionic-Attic /u(:)/ > Attic /y(:)/. In this case the number of phonemes remains unchanged and, consequently, this change only implies a slight modification of the phonemic system.

TRANSPOSITIONAL FORCE

It is evident that these three types of changes do not possess equally strong transpositional force.

G. Hammarström has studied orthographic change in the light of these types of phonetic-phonemic changes. He establishes (p. 16) the fact that phonemic changes of the type dephonologization and phonologization "sont en effet souvent représentés dans l'écriture soit sous forme d'un changement complet de l'orthographe, soit sous forme de 'fautes d'orthographe' plus ou moins isolées. Comme l'orthographe... est souvent traditionnelle, un changement du type dont il est question, ne laisse pas forcément de trace dans l'écriture".

Furthermore, as regards the third type, rephonologization, "l'expérience nous montre que d'ordinaire le changement reste sans expression orthographique. Pour celui qui veut dater le changement [u] > [y] en français ou en provençal, la grande difficulté est que ni dans l'une ni dans l'autre langue on n'a senti le besoin de remplacer par une autre lettre la lettre *u* héritée du latin" (Hammarström, *l.c.*).⁸⁵

Generally, dephonologization produces the strongest transpositional force. The loss of a phoneme is very apt to be reflected in the graphemic system.

In the case of phonologization the tendency towards transposition is weaker, but since this change always involves a reduction of frequency of one or more phonemes, e.g. of /a/ and /i/ by the monophthongization of /ai/ into /æ:/ the transpositional force is stronger than by rephonologization.

⁸⁵ These phenomena have been realized also by Meillet (p. 259): "Tout le monde a toujours écrit φ, θ, χ et β, δ, γ, et aucune faute ne vient avertir des changements de prononciation que dissimule la permanence de la graphie". The same idea is expressed by Schwyz., *GG* I 203 (cf. below, p. 220, n. 177).

Since rephonologization affects neither the number nor the frequency of phonemes, this change is very unlikely to influence the graphemic system by transposition.

Since they are universal, these conditions are at hand in all languages and especially in those that have a conservative and uninterrupted orthography like Greek. Between Latin and Old French or between Old English and Middle English or in Old Icelandic on the introduction of Latin writing there was a period of utter confusion of orthography, i.e. a stage of radical reorganization of the traditional orthography so that it should fit a new phonemic system.⁸⁶

SUPPLY OF GRAPHEMES

As is seen in Grafström and McLaughlin, the supply of graphemes and graphemic sequences apt to replace the orthographic norm was on the whole very large in the languages in question. This is because the total number of graphemes was large and because the very state of transition from one orthographic norm to another permitted the writers to combine graphemes unconstrainedly.

In Greek there did not exist by a long way a supply of graphemes and graphemic sequences comparable with that of the above-mentioned languages. This is true especially of Attic with its not very differentiated graphemic system, although the situation was not entirely so bad as is maintained by Tucker, *TAPA* 93 (1962) 496 f.

Now, it should be observed that the number of graphemes or graphemic sequences suitable for orthographic variation greatly depends on the type of phonetic change involved. In the case of dephonologization the possibility of orthographic variation was generally good in Attic, as is usually the case in all languages. If, for example, [e:] and [i:] merge into one sound [i:] both the corresponding graphemes <E>/<EI> and <I> may be used as corresponding to this sound.

In a phonologization change, however, there are in Attic very few

graphic alternatives to the orthographic norm. For example, if [oi] is monophthongized into a sound so far not existing in the dialect, the probability of orthographic variation is not very great. There did not exist anything like an unemployed grapheme that could be used as a correspondence to the new phoneme, but the traditional graphemic sequence <OI> was the most natural graphic correspondence even after the phonemic change.

The third type or change, rephonologization, can be expected to produce very few, if any, instances of orthographic variation in Attic, with its little differentiated graphemic system. For example, if [g] > [ɣ], the grapheme <Γ> was the only suitable correspondence to the velar fricative. As in the case of the change La. [u] > Fr. [y], there was no need of a corresponding change in the graphemic system.

CONTROL OF ORTHOGRAPHY

A necessary condition of a stage of large-scale orthographic variation reflecting the (previous and contemporary) development of the phonemic system is a period of marked cultural decline or a transitional period between two cultural stages, involving reduced knowledge of writing and ineffective or almost abolished control of orthography opening the way for individuals to write almost at their will.⁸⁷

*There is no such period in Greek culture during the whole of antiquity.*⁸⁸

Consequently, we should expect the control of orthography to have been rather strict during the whole of that era. Obviously this was also actually the case. The phonemic (and phonetic) changes that

⁸⁷ Cf. Weinstock, pp. 7 and 64 f., and above, p. 27.

⁸⁸ The opinion held, for example, by Blass (p. 9) and Pernot (pp. 70, 122, and 142 f.) that the adoption of the Ionic alphabet in Athens in 403 should be looked upon as being an introduction of something like a systematically phonemic or phonetic spelling is erroneous. The reason for this reform was certainly not to bring about a phonemic or phonetic spelling, but only to ratify a practice that had become more and more common in Attic during the second half of the 5th century. The adoption of the Ionic alphabet in 403

⁸⁶ Cf. Grafström, pp. 49, 194—196, 209—213, and 251, McLaughlin, pp. 134—140, and Weinstock, pp. 87, 91, 98, and 100.

took place during that long period of time never caused a totally⁹⁰ changed orthography, but only more or less infrequent tendencies towards variations. During some periods we can observe tendencies towards a changed orthography, namely when a variant grows more and more frequent and sometimes becomes so predominant as to form a new orthographic norm. But the original orthography always tended to be restored. As a rule the restoration was successful, in most cases definitely, so that the original orthography has survived down to MG. Sometimes it was temporary, so that the variant that had been suppressed or abolished by restoration revived. The cases of restoration are numerous, for example:

Date of restoration	Orthographic variant	restored into the original graphic form	References
ca. 320 B.C.	-ῶς, -ῶν, -ᾶ, -ᾷς / [i]-	-έως, -έων, -έα, -έας ⁹⁰	Lademann, p. 96 and Mhs, pp. 141 f.
3rd c. B.C.	ε / -[V]	ει	Mhs, pp. 40—44
3rd c. B.C.	ἐχ / -[aspir. stop]	ἐκ	Mhs, p. 106
ca. 146 B.C.	ει (in dat. sg. fem., subj., ⁹¹ and augment)	ηι	Henry, <i>Class. Quart.</i> 14 (1964) 240—245
1st c. B.C.	ἐγ / - $\left\{ \begin{array}{l} \text{[voiced stop]} \\ \text{[nasal]} \\ \text{[I]} \end{array} \right.$	ἐκ	Mhs, pp. 108 f.
1st c. B.C.	ὀλίος	ὀλίγος	Lademann, p. 56
1st c. B.C.	οὐθείς, οὐθέν	οὐδείς, οὐδέν	Lademann, p. 61
1st c. B.C.	μηθείς, μηθέν	μηδείς, μηδέν	Lademann, p. 61
ca. 30 B.C.	οι / -[V]	ο	Mhs, p. 58
imperial period	ποιεῖν	ποιεῖν	Mhs, p. 57
imperial period	υός	υῖός	Mhs, p. 60 and Lademann, p. 38
imperial period	γίνομαι	γίγνομαι	Lademann, p. 55

without any modification whatsoever does not, of course, prove that the phonetic structure of Attic had at that point of time become identical with that of the Ionic dialect. The reform was in the first place political and cultural, not linguistic.
⁹⁰ I.e. comprising the whole phoneme. Only in a few morphemes was the orthography changed, and even then this was often only temporary.
⁹¹ and ⁹² See p. 171.

In a few cases the new graphic forms were accepted and escaped restoration, for example:

Original graphic form	New graphic form	References
οἱ βασιλέης etc.	οἱ βασιλεῖς etc.	Mhs, p. 141
Ἀθηναία	Ἀθηνᾶ	Mhs, p. 32
Λευκονοεῦς	Λευκονοεύς	Mhs, p. 57
δωρεά	δωρεᾶ	Mhs, p. 40
εἰάν	ἐάν	Lademann, p. 112
αἰεῖ	ἀεῖ	Mhs, p. 33,4
ἐλαία	ἐλάα	Mhs, p. 31, n. 158

In some cases the definite acceptance of new graphic forms as an orthographic norm may reflect special (conditioned) phonetic changes.

The marked continuity of Greek orthography, accompanied in the course of the centuries by the appearance of more or less ephemeral orthographic variants, shows that the control of orthography from classical times (cf. above, p. 32) onwards was strict. During certain periods—the early Hellenistic and the early imperial ones—orthographic conservatism was reinforced by the prevalent purism.

It is evident, then, that the statements made by Hammarström (cf. above, p. 167) are especially pertinent to Attic: Only phonemic changes of the types dephonologization may cause a change of orthography. But the probability of this is considerably reduced, if the graphemic system is subject to a continuous control by a firm tradition, as was probably the case in Attic from ca. 500 onwards

⁹⁰ This restoration was not successful; the forms without <E> never disappeared and later regained their preponderance.

⁹¹ In dat. sg. fem. of the rel. pron. the orthography <HI> was kept. According to Henry, *Class. Quart.* 14 (1964) 244 the ratio of <HI> : <EI> in this form 323—146 B.C. is 110 : 10. Elsewhere in dat. sg. fem., subj., and augment, the predominance of <EI> in the same period is 953 as against 337 instances of <HI>. There is good reason to "assume that this was a deliberate convention which ignored the phonetic trend of the times ... to distinguish it from the conditional particle εἰ" (Henry, *l.c.*, p. 245). This conservation of the original orthography in one single form, while it was changed (temporarily) elsewhere, clearly illustrates the high evidential value of infrequent variants: the 10 instances of εἰ as against the 110 of ἡι suffice to indicate the phonetic change that had taken place. Cf. below, *Principle 3*.

(above, p. 32). Consequently, one should generally expect that the two types of phonemic changes mentioned could produce only more or less infrequent orthographic variants after that time.

These tendencies are further reinforced by the generally small number of suitable graphemes and graphemic sequences in OA apt to replace the orthographic norm.

Inverse spellings

With regard to *Principle 2* it is evident that certain types of inverse spellings cannot be expected to occur, unless the transpositional force of the underlying phonetic change is strong or very strong. Such a strong force may have caused the writings <AI> for <A>, <OI> for <O>, <EY> for <E>, <AY> for <A> etc. (cf. Vars. 37, 63—64, 82), while <EI> for <I> is nearer at hand, because the underlying change implied a dephonologization, giving the result that <EI> and <I> became members of the same phonographeme </i:/>.

We may posit, then, that inverse spellings of the former type should be interpreted as products of a very strong transpositional force. Consequently, fully valid (see above, p. 50, n. 50) instances of this type should be interpreted as indicating a nearly or totally accomplished phonetic change. If there is other evidence besides that of the inverse spelling it may even be just to conclude that the change had been accomplished some time before the earliest occurrence of the inverse spelling (cf. McLaughlin, p. 82).

Principle 3

The orthographic variant that constituted an orthographic norm corresponding to a given phoneme at the time when the graphemic system was introduced provides, at a later point of time, evidence 1) primarily of the phonetic character that the corresponding phoneme had when the orthographic norm was established, 2) secondarily of the contemporary phonetic character of the corresponding phoneme.

It has been affirmed above (pp. 27 and 46 f.) that all phonemic systems change continuously, while graphemic systems always remain more or less unchanged for long periods. The much more rapid development of the phonemic system as compared to the

graphemic will produce, as time goes on, increasing discrepancies in the original grapheme-phoneme correspondences in any language.

Consequently, the grapheme(s) that corresponded in the original graphemic system to a phoneme of a certain phonetic character constitute, at a later point of time, decisive evidence for an unchanged phonetic character of the corresponding phoneme, *only if there do not exist other orthographic variants* providing decisive evidence for a change of the phonetic character of that phoneme.

In the case, then, when such orthographic variant(s) clearly indicate that the phonetic character of the phoneme had changed, the orthographic norm is deprived of its evidence of the unchanged phonetic character of its correlated phoneme and becomes evidentially neutral.⁹²

The above three principles will constitute the theoretical basis of the phonetic evaluation of the orthographic data. Their purpose is to facilitate, as far as possible, the bridging from writing to speech, which is the most crucial problem in this kind of research, because "only by understanding the limitations of the correlations (between the two systems) can we, for one thing, make proper use of the available written material as evidence about the spoken language" (McIntosh, p. 28).

We will now examine the orthographic variations in their capacity as *graphemic neutralizations* possibly reflecting phonetic changes.

A graphemic neutralization is a suspension of the opposition between a) two graphemes or b) two graphemic sequences or c) one grapheme and one graphemic sequence.⁹³

The term "graphemic neutralization" refers exclusively to the graphemic system, while the term "orthographic variation" is relational and always implies a reference to a corresponding

⁹² This only means that the existence of evidential variants unmasks the dominating norm as being a product, not of transposition, but of conservative traditional spelling. Cf. above, footnote 91.

⁹³ The term is used in this work in the same sense as it has been used by McLaughlin (pp. 33 f., 50—55 *et passim*) and Weinstock (pp. 60—63).

It should be noticed that the concept of "neutralization" used in graphemics is not synonymous with that used in phonemics. Neutralization of the opposition between phonemes is by definition predictable, while graphemic neutralization may also — perhaps mostly — be capricious. This is because phonemic and graphemic systems are not entirely commensurable.

phoneme. It should be noticed that the latter term is always used in a partial sense in the present work: it denotes variation with only two (i.e. usually not all) variants.

This implies that one graphemic neutralization often comprises more than one such "orthographic variation", especially as one grapheme often corresponds to two or more phonemes.

The term graphemic neutralization is used here beside the orthographic terms because it seems important to look upon the graphemic system as an autonomous entity correlated to the phonemic system through the orthography (and the orthophony). This view is facilitated by the use of parallel terms for each of the two systems. The graphemic neutralizations will be treated one by one, or by groups, depending upon which alternative seems to be the more convenient for the clear disposition of the account.

It should be observed that conclusions about phonetic changes may apply to the dialect of the majority or to that of minor groups of speakers. Only in Chapter 8 conclusions refer to the former entity unless otherwise marked.

Phonetic Evaluation

GRAPHEMIC NEUTRALIZATIONS

1a <E>/<EI>⁹⁴ ~ <I> (Variations 1—3)

1b <E> ~ <I> (Variation 4).

Markings with non-phonetic factors		Environments	
Number of markings	Instances	Preceding tentative phonemes ⁹⁶	Following tentative phonemes
	2	/a, p, t, k, d, g,	/i, e:, ε:, a(:),
4	13	p ^h , t ^h , k ^h , s, h, l,	ɔ:, o, u:, p, t, k,
3	32	r, m, n/ and #	b, d, t ^h , k ^h , s, l,
2	62		r, m, n/ and #
1			
Fully valid	30		
Context-free total	139		
Context-sensitive ⁹⁵	35		
Total	174		

⁹⁴ The graphemic neutralization <E> ~ <EI> (originally corresponding to /e:/ and /ei/ respectively) is documented from ca. 650 onwards (e.g. *εἰμί* Jeff., pl. 1,4 and pl. 2,10 f.). The development resulted in a stage of alternative orthography <E>/<EI> lasting until ca. 350. Since the change [ei] > [e:] is generally agreed to have taken place before classical times (so also Allen, *Vox Graeca*, p. 68, but cf. *l.c.*, pp. 79 f.) the neutralization <EI> ~ <E> does not need to be examined and, moreover, an examination of this neutralization would be contrary to the method followed in the present study; cf. below, p. 179, n. 104. The overwhelming evidence for a very early monophthongization of [ei] even /-[V] provided by that frequent neutralization and further by the neutralization <E>/<EI> ~ <I> /-⟨α⟩ beginning as early as in the 6th century rules out the unfounded opinion maintained by Allen, *l.c.*, pp. 79 f. and Lupaş, *Phonologie*, p. 34 that the diphthongal pronunciation lasted as late as in the 4th century. Allen's supposition that <EI> originally corresponded to [ejj] lacks evidence. Cf. below, pp. 180 f.

⁹⁵ Cf. above pp. 63 ff.

⁹⁶ Instead of the graphemic, the phonemic environments are given here and henceforth in this chapter for the sake of simplicity. The phonemes are the tentative ones listed above, pp. 36 f.

Material for the treatment of these vowels is provided by Neutralization 1a (Vars. 1—3). Vars. 2—3 are to be looked upon as inverse spellings. For the evidential value of such spellings cf. above, p. 172.

Considering the later development of Attic the phonetic change to be expected is [e:] > [i:]. According to *Principle 2* (above, pp. 165 ff.) we should expect rather numerous instances of the graphemic neutralization 1a because this change involves the disappearance of the phonemic opposition /e:/ : /i:/ (dephonologization) and because the grapheme <I> is at hand as apt to correspond to the new phoneme /i:/ in all positions. Reverse spellings are of course also to be expected.

Conclusion 1

The instances of orthographic transposition (fully valid, i.e. not marked instances), together with those marked with one or two non-phonetic factors,⁹⁷ are so numerous as to present, according to *Principle 1* (above, pp. 50 and 165), clear evidence in favour of a phonetic change [e:] > [i:].⁹⁸

After we have established the existence of this change, it remains to be decided whether the change was general or not.

The change seems to have begun as early as in the 7th century in certain environments, probably in the position before or after [l]. This is concluded from the high frequency of neutralization /[l]_: 30 instances of Var. 1, all of which except five are dated before 400.⁹⁹ Further, the change is already clearly demonstrated /_[Ci] (assimila-

tion) by the earliest instances of Neutralization 1a. A third type of environment where the change was initiated is before or after a resonant other than [l], viz. [r], [m] and [n].¹⁰⁰ There are 31 instances of Var. 1 in this environment. Twenty are dated before 400. In Var. 2 all instances except two are found in this position.

However, the change was not confined to the environments mentioned. There are 24 instances of Var. 1 in other positions, 9 of which are dated before 400. In Var. 2 there is only one instance, while Var. 3 contains 15 instances in other environments than those discussed above.

The higher frequency of graphemic neutralizations in these environments than elsewhere displays the development of the phonetic change [e:] > [i:]. It began and was first accomplished there, which is seen from the especially high frequency of neutralization in these positions during earlier times. After 400 the neutralization in other environments grows more frequent (in Var. 1 the ratio is 15 : 16).

We further observe that the relative frequency of neutralization is lower /_[V] than /_[C]. In Var. 1 the ratio is 11 : 66, and in Var. 2 there is no instance /_[V]. In Var. 3, however, where the ratio is 13 : 19, the neutralization is most frequent /_[V].¹⁰¹

All instances of Var. 1 /_[V] that date before 400 (Nos. 8, 10—12, 41, and 43) are marked with three non-phonetic factors and are thus little conclusive. Var. 3 contains only three instances /_[V] before that date. During the 4th c. there are 13 instances of Neutralization 1a /_[V].

Conclusion 2

The phonetic change [e:] > [i:] began in the position before or after [resonant] and/or /_[Ci] and was accomplished in these environments during the 6th c. The change was generalized /_[C] during the 5th c.

¹⁰⁰ The orthography of ἰμάτιον (< *ἐμάτιον) is further evidence of the very early date of the change in this position (cf. Schwyz., *GG* I 193,1).

¹⁰¹ It must be considered that the number of autographemes and syngraphemes in the system is in the ratio 1 : 3. However, autographemes generally have a higher textual frequency than syngraphemes.

⁹⁷ This group represents the directly conclusive evidence. Instances marked with three or more factors and/or with context-sensitive factors are looked upon as supplementary evidence.

⁹⁸ The conclusion that the change was in this, and not in the opposite direction is justified diachronically by our knowledge of the future development of the front vowels.

⁹⁹ That the phonetic change [e:] > [i:] was very early also /_[l] is seen in the orthographic norm Xίλιοι (the original form *Xēλιοι is not found) and 'Ιλεῖθυα (Hom. Εἰλεῖθυα): the earliest instance of reverse spelling <EI> for <I> is found in this proper noun (Var. 2,1 dated 575/50); further in the alternative orthography Μετλήχιος ~ Μιλήχιος (cf. Mhs, p. 56, n. 478 and Kr., pp. 134 f.

Before vowel the change was probably delayed until the end of the 5th century.¹⁰²

During the period 400—340 the quality was certainly more open /- [V] than /- [C].

As regards the original long vowel /i:/ (orthographic norm <I>), it may have had a relatively open quality, which may have furthered its merger with /e:/.

The short vowels [i] and [e]

Evidence as to the quality of [i] is provided by Vars. 3—4. Var. 4 represents inverse spelling as against Var. 3. When treating [e] we should regard Var. 3 as inverse spelling as against Var. 4.

Conclusion 3

The graphemic neutralizations 1a and 1b as represented by Variations 3—4 indicate an open quality of the short vowel [i] and/or a narrow quality of [e].¹⁰³

These frequent neutralizations seem to indicate that these sounds tended to become identical, possibly through a change [e] > [i], but our knowledge about the later development (down to MG) prevents such a conclusion.

These statements apply to these vowels generally, since the graphemic neutralizations are represented in almost all environments. The predominance of neutralization /- [C] in Var. 4 (ratio 33 : 8) seems at the first sight to reflect a narrower quality of [e] /- [C] than /- [V], but cf. the further discussion below under Neutralization 2.

¹⁰² Because of the tendency of vowels (and diphthongs) to be shortened /- [V], /e:/ was apt to merge with the short /e/ in that position (phonemic split). In isolated cases this actually took place: cf., for example, contractions such as Πλωθεύς < Πλωθειεύς, Τρινεμεύς < Τρινεμειεύς, Δεκελεύς < Δεκελειεύς; cf. below, p. 181, n. 107. The phenomenon is clearly demonstrated by the frequent spelling <E> for <EI> /- [V] (Mhs, pp. 40—44), and it is also seen in metrics: cf. Mhs, p. 43, 13. The example ἀργαλείοις (---) is commented by Rabehl, p. 14 "quod non potuit dicere poeta si differentiam inter ε et ει sentiebat". (For dating of defixiones see Wilhelm, pp. 105—126).

¹⁰³ Conclusions as to vowel length will be drawn later in a joint account of all evidence bearing upon that problem (cf. below, pp. 218 f.).

2 <E> ~ <EI>¹⁰⁴ (Variations 5—6)

Markings with non-phonetic factors		Environments	
Number of markings	Instances	Preceding tentative phonemes	Following tentative phonemes
	3	/i, e, t, b, d, g,	/ε:, a(:), o:, o,
3	16	p ^h , t ^h , s, l, r, m,	u:, t, s, m, n/
2	79	n/ and #	
1	20		
Fully valid			
Total	118		

The large number of instances and the few markings give this neutralization a great phonetic evidential value.

The variant <EI> /- [V] is almost totally concentrated to the 4th century. It can be observed that its frequency increases markedly about 350. Exactly at that time the (Ionic) graphemic sequence <EI> definitely ruled out the OA <E> as corresponding to (tentative) /e:/.¹⁰⁵ It is quite probable that a considerable number of instances are actually due to an excessive use of the sequence (hypercorrect writing).

The contemporary parallel transition from OA <O> to (Ionic) <OY>, however, is accompanied by only eight instances of <OY> for <O> corresponding to /o/ (Variation 92). Four of them are dated around 350.

The markedly higher frequency of <EI> for <E> is thus certainly due primarily to phonetic, and only partly to alphabetic, causes. Consequently, we must try to find these phonetic causes.

We have seen above (Variations 1—3) that ca. 400 <EI> corresponded to [i:] /- [C], most probably also /- [V]. The comparably

¹⁰⁴ The neutralization could be studied only in one direction, i.e. only <EI> for <E> could be examined, not <E> for <EI>. This is because <EI> is joined with <E> into <E>/<EI> (orthographic norm corresponding to tentative /e:/; cf. above, p. 51) down to ca. 350.

The variant <E> for <EI> is especially frequent /- [V] (cf. Mhs, pp. 40—44). See discussion below, pp. 180 f.

¹⁰⁵ As we have seen above (pp. 176 f.) this vowel had merged with /i:/ at that time.

few instances of Neutralization 1a /₋[V] were interpreted as evidence of a somewhat more open quality in the new vowel [i:] /₋[V].

The evidence of Vars. 3—4 allowed a further conclusion about the qualities of the short vowels [i] and [e] as being fairly close to each other. Var. 4 was tentatively interpreted as indicating a narrower quality of [e] /₋[C] than /₋[V].

Now the marked predominance of Neutralization 2 /₋[V] (Var. 6) seems on the contrary to indicate a narrower quality in [e] /₋[V], provided that the graphemic sequence <EI> is interpreted as corresponding ca. 350 to a sound similar to [i:].

This contradictory evidence may perhaps to some extent be due to the fact that Neutralization 2 could be studied in only one direction (cf. note 104), so that what is studied here is only part of the actually existing material. There is the well documented predominance of <E> for <EI> /₋[V] (Mhs, pp. 40—44) from earliest times. It may be concluded that original [ei] actually developed (through [e:]) into a short [e] in some cases. This is seen in the changed orthography of some words from ca. 350 onwards, e.g. Ἡρακλεώτης, Ποσιδεών (< Ποσιδειών < Ποσιδηιών), πλέον (Mhs, pp. 151 f.), Τρινεμ(ε)εύς (Mhs, p. 44) etc. This development had certainly begun a good time before it can be verified in the 4th c. through the change in the graphemic system: <EI> corresponding to (tentative) /e:/, and <E> to /e/.

Generally, however, the [e:] merged with [i:] (> MG [i]) also /₋[V].

Consequently, the high frequency of <E> for <EI> /₋[V] is only partly due to a change [e:] > [e] in that position. This implies that the opposite writing, <EI> for <E> /₋[V], cannot simply be explained as evidence of that change. Thus we must search for a general explanation of the phenomenon.

One thing can be considered certain: there did not exist any Attic diphthong [ei] or [ej] (e + semivocalic glide) or even [ejj] as suggested by Allen.¹⁰⁶ This is shown by the decisive evidence of Vars. 1—3 above.

If there had existed such a sound it would have caused occasional transposition into the graphemic system, especially considering the fact that the grapheme <I> was at hand for that purpose. But

¹⁰⁶ Word 15 (1959) 249—251 and *Vox Graeca*, pp. 79 f.

the alternative spellings πελελίνος and ρομείλα in the place of πελελίνος and ρομέλα (Mhs, p. 44, 18) form the only existing material of that kind. The evidence of Var. 24 is negligible because only two morphemes are represented.

Furthermore, one typically Attic development, viz. the contractions, would not have been able to last during the whole history of Attic, if it had been "likely that a i-glide would develop between the front vowel ē and a following vowel" (*l.c.* above, n. 106, p. 249). Already in the earliest Attic inscription, dated 735/25, we meet the contracted form ὀρχεστών, and the development goes on even as late as in the period treated in this study: Πλωθειεύς > Πλωθεεύς > Πλωθεύς, Δεκελειεύς > Δεκελεεύς > Δεκελεύς etc.¹⁰⁷ Before two vowels can contract they must enter into direct contact. This would never occur, if "a [y] glide was automatic after a close or mid front vowel" (*Vox Graeca*, p. 79).

If it is taken for granted, then, that <EI> and <E> corresponded, in the period 400—340, to monophthongs, [i:]¹⁰⁸ and [e] respectively, the question to be answered is why <E> was more frequently replaced by <EI> /₋[V], but by <I> /₋[C].

Conclusion

Vars. 3—4 were interpreted as indicating an open quality of the short vowel [i] /₋[C] (Var. 4 is looked upon as inverse spelling). It is reasonable to assume that the long vowel [i:] (corresponding to <EI>) had a narrower quality than the short one in this position. Thus, the high frequency of <EI> for <E> /₋[V] (Var. 6) should evidently be interpreted as indicating a closer quality of the short vowel [e] /₋[V] than /₋[C].¹⁰⁹

¹⁰⁷ E.g. IG II² 1172,30 Πλωθέας, 35 Πλωθῆς (ca. 400), 3038,2 Πλωθεύς (364/3), 7237,4 Πλωθεύς (ca. 360), 7242,3 [Π]λωθεύς (365/40), *Hesp.* 8,17,5E,3 Πλωθεύς (357/6), *Hesp.* 3, 65,57,4 Δηκελέως (338/7?), IG II² 7236,3 Πλωθέως (4th c.).

Cf. Mhs, pp. 44,16; 73,1; 120,11; 140,8; 141,10.

The traditional spellings always tend to predominate and in most cases they are restored. Cf. above, p. 170.

¹⁰⁸ Even /₋[V] the quality was certainly more like [i:] than [e:].

¹⁰⁹ This explanation was suggested already by Schmidt, *KZ* 27 (1885) 295, n. 3, Solmsen, *KZ* 32 (1893) 513, Brugmann—Thumb, p. 77, and Kretschmer, p. 136. Cf. Sturtevant, p. 38, n. 24.

It can be seen that 61 instances of Var. 6 are found / [resonant], i.e. the neutralization is clearly predominant in this environment, as is the case in Vars. 1—3. In Var. 4 there are 17 instances in that position, 8 of which / [V]. (The 14 instances / [resonant] must be left out of consideration when comparing with Var. 6, which contains only instances / [V]). From the distribution of the few instances of Var. 5 nothing can be concluded.

It seems probable, then, that there was a general tendency of e-sounds, the long as well as the short, to become closer / [resonant].¹¹⁰

The similar distribution of Var. 6 and Vars. 1—4 supports our interpretation of Var. 6: The same conditions most probably produced similar results.

We thus find that the long vowel [i:] was more open / [V] than / [C], while the short front vowels show the reverse relation. See outline below, p. 186.

- 3a <IEI> ~ <EI> (Variations 7—8)
 3b <E>/<EI> ~ <IE> (Variation 9)
 3c <E> ~ <IE> (Variation 10)

The few instances of these graphemic neutralizations would not, if they occurred in isolation, provide any phonetic evidence. However, the nature of the neutralizations makes it possible to treat them together and in connection with those treated under Neutralizations 1a, 1b and 2 above.

Thus, they all become evidential, even the hapax instances of Vars. 8 and 10. Cf. above p. 165.

Conclusion

The evidence of Neutralizations 3a—3c coincides with that of Neutralizations 1a—1b and 2.

¹¹⁰ Only the long vowel actually changed into [i:].

4 <H> (<E>)¹¹¹ ~ <E>/<EI> (Variations 11—12)

All instances (perhaps with the exception of 11,1) date from times when <EI> corresponded to an i-sound. The neutralization is represented only / [C]. Var. 12 is interpreted as inverse spelling.

Conclusion

The few instances of Neutralization 4 indicate a narrowing of [æ:] and [ɛ:]. For further evidence see the following variations.

- 5a <H> ~ <E> (Variations 13—14)
 5b <E> ~ <HE> (Variation 15)

Markings with non-phonetic factors		Environments	
Number of markings	Instances	Preceding tentative phonemes	Following tentative phonemes
3	41	/i, o, p, t, k, d,	/a:, o, ɔ:, u:, t,
2	50	g, p ^h , t ^h , k ^h , s, h,	k, b, d, g, p ^h ,
1	21	l, r, m, n/ and #	t ^h , k ^h , s, l, r,
Fully valid	28		m, n/ and #
Total	140		

The undifferentiated OA alphabet prevents us from studying the graphemic neutralization of Variation 13 until after 403, and this reform has been the well-founded reason for the many markings with factor (4).¹¹²

The transpositional force of the phonetic change to be expected, viz. ([æ:] >)¹¹³ [ɛ:] > [e:] (dephonologization) is great and the graphemic conditions of neutralization are favourable. Thus, it is

¹¹¹ The OA grapheme is given within parentheses here and throughout below.

¹¹² For the rules of marking with factor (4) in Vars. 12—15 see above, p. 60.

¹¹³ That the change [æ:] > [ɛ:] was an accomplished fact very early, and certainly before 600 is demonstrated by Neutralization 6b (see below, pp. 184—186).

natural that the number of instances marked with two or less factors is large.

Vars. 14 and 15 are interpreted as inverse spellings, and the hapax instance of Var. 15 becomes evidential in connection with Vars. 13—14.

Neutralization 5a has a wide-spread distribution, but only 10 instances (all belonging to Var. 14) occur /₋[V], 6 of these in the same morpheme. This phenomenon is probably primarily due to the phonotactic structure of the language: the (tentative) phoneme /ε:/ does not occur /₋[V], and /e/ is infrequent in this position. Among the 72 instances of Var. 14 there are 11 that may be due to a syllabic reference of <H>.

Conclusion 1

The graphemic neutralizations 5a—5b clearly indicate a general narrowing change [ε:] > [e:].

Because Var. 13 could not be studied before 403, no reliable information can be drawn from Neutralizations 5a and 5b as to what time this process began. Only from the further evidence provided by Neutralizations 6a—6b (Vars. 16—19) can it be concluded that the change was probably accomplished in the 6th century.

6a <H> ~ <IH> (Variation 16)

6b <H> (<E>) ~ <I> (Variations 17—19)

Markings with non-phonetic factors	
Number of markings	Instances
2	15
1	31
Fully valid	6
Total	52

Environments	
Preceding tentative phonemes	Following tentative phonemes
/i, p, t, k, d, g, p ^h , t ^h , h, l, r, m, n/	/a:, p, t, b, d, p ^h , s, m, n/ and #

The phonetic change that may underlie these graphemic neutralizations is in the first place the same as in Neutralizations 5a and 5b, viz. [ε:] > [e:]. In the second place Neutralizations 6a and 6b may have been caused by a further change [e:] > [i:]. Since both changes are dephonologizations (at the same time they are rephonologizations) their transpositional force is great. Since the graphemic conditions of neutralization are very good, frequent neutralizations are to be expected as a result of these changes.

From the later development we know that the change must have been a narrowing process and not the opposite. Consequently Vars. 18—19 should be looked upon as inverse spelling.

We have just seen that Neutralization 5a is very frequent. Also Neutralization 6b is rather frequent. The evidential value of the latter is considerable, because no instance has been marked with more than two non-phonetic factors. Neutralizations 6a and 6b occur only /₋{[C]} (except 18,1), but in this position the environmental restrictions are few. It is notable, however, that there is no instance /₋[r], although the (tentative) phoneme /ε:/ is frequent in this position.

As regards the position /₋[V] it was noticed above (p. 184) that the (tentative) phoneme /ε:/ did not occur in that environment. The i-vowels are infrequent /₋[V]. Consequently we should expect only very few instances in this position, and only of Var. 18. It is not surprising, then, to find only one instance (18,1) /₋[V], and it can be claimed that the change was general.

It is to be observed that Neutralization 4 (Vars. 11—12) is very infrequent as compared with Neutralization 6b (and 5a). This difference is probably significant and should be interpreted phonetically.

The earliest instances of Neutralization 6b date from the 6th century, but there are only 6 (or possibly 8) instances before 500. There are 19 instances during the 5th, 21 during the 4th, and again only 4 during the 3rd century.

Conclusion 1

Since the earliest instances of Neutralization 6b are inexplicable, unless the narrowing process [ε:] > [e:] (not to speak of the foregoing merger [æ:] > [ε:]) had already been nearly or completely

accomplished, this change seems to have taken place during the 6th century.

Conclusion 2

The high frequency of Neutralizations 5a and 6b as compared with Neutralization 4 indicates that the supposed further change [e:] (<[ε:]> [i:] was taking place, but was perhaps not yet accomplished. We conclude preliminarily that <H> corresponded to a very close [e:] ca. 350,¹¹⁴ perhaps with the exception of /₋[r].

The phonetic pattern of the narrow front vowels can now be described in the following way (cf. above, pp. 181 f.):

The phonetic pattern of the narrow front vowels can now be described in the following way (cf. above, pp. 181 f.):

a) Long vowels

(I) and (EI) [i:] < open /-[V] (Vars. 1—2)
narrow /-[C] (Vars. 1—2)

(H) [e:] < open /-[r] (Vars. 11—19)
narrow elsewhere (Vars. 11—19)

b) Short vowels

<I> [i] < narrow /- [V] (Vars. 3—4)
 open /- [C] (Vars. 3—4)
 <E> [e] < narrow /- [V] (Vars. 5—6)
 open /- [C] (Vars. 5—6)

¹¹⁴ The great, and probably very important, material found in the Academy of Plato may, when it has been published, increase the material of Var. 17 very considerably and so make another conclusion possible or necessary. Cf. Var. 17, 16—19 note.
See the further discussion below, p. 189.

$$\gamma_a \langle HI \rangle / \langle EI \rangle (\langle EI \rangle) \sim \langle H \rangle (\langle E \rangle) \text{ (Variations 20—21)}$$
$$7b \langle HI \rangle / \langle EI \rangle \sim \langle E \rangle \text{ (Variation 22)}$$
$$7b \langle HI \rangle / \langle EI \rangle \sim \langle EE \rangle \text{ (Variation 23)}$$

7c $\langle HI \rangle$ ($\langle EI \rangle$) $\sim \langle EE \rangle$ ($\langle EI \rangle$) (Variation 24)

$$7d \langle EI \rangle \sim \langle EI \rangle (Variation 25)^{115}$$
$$7e \langle \text{HI} \rangle \sim \langle \text{EI} \rangle \text{ (Variation 26)}$$
 $7f \langle HI \rangle \sim \langle I \rangle$ (Variation 20)

Markings with non-phonetic factors		Environment	
Number of markings	Instances	Preceding tentative phonemes	Following tentative phonemes
4	1	/i, o, t, k, d, g,	/o, p, d, s, l, r/
3	5	p ^h , k ^h , s, h, l, r,	and #
2	22	n/	
1	32		
Fully valid	6		
Total	66		

The phonetic changes to be expected are in the first place a monophthongization ($[\text{æ:i}] > [\text{æ}]$)¹¹⁶ $[\text{ε:i}] > [\text{ε}]$, and a narrowing change $[\text{ε}] > [\text{e}]$ (cf. above, Neutralizations 4—6).

Since both of these changes represent a dephonologization, affecting the whole or part of the phonemes,¹¹⁷ and the possibility of orthographic variation is good, frequent graphemic neutralizations can be expected.

In Vars. 20, 22, and 26 marking with (2) is general according to the rules of this factor (cf. above, p. 59). The significance of factor

¹¹⁵ This neutralization is studied only in one direction. The variant <EI> for <HI> grows more and more frequent during the 4th century, so as to become predominating (normal) towards the end of that century. This circumstance, and the fact that the development has already been described by e.g. Mhs, pp. 36—39, Lademann, pp. 9—29, and Henry, *Class. Quart.* 14 (1964) 140—145, prevented us from including this vast material in this study.

The relative frequency of *πόλη* as against *πόλει* may be higher than 25%. However, its significance is reduced through the general marking with (6).¹⁶ It has already been established above (p. 182) that the

¹¹⁶ It has already been established above (p. 183, n. 113) that the general change [æ:] > [ɛ:] took place before 600. This is of course true also of [æ:] in the diphthong [æ:i].

¹¹⁷ For the first type of change cf. [a:i] > [a:] below, pp. 191 f.

(2) is thus suspended in these variants. There is a clear preponderance of graphemic neutralizations /_# (44 instances). This is mainly due to the markedly predominating frequency of /ε:i/ in this position. Phonotactic restrictions on the distribution of /ε:i/ are also the most probable cause of the somewhat restricted distribution of Neutralizations 7a—7f. It can therefore be claimed that these neutralizations are unconditioned.

The earliest three instances of Var. 20 with each three markings must be regarded as of small significance. The first valid instances occur in the first half of the 5th century,¹¹⁸ while the frequency culminates in the 4th century. Vars. 21 and 25¹¹⁹ are looked upon as inverse spellings.

Conclusion 1

The graphemic neutralizations 7a, 7b, 7e, and 7f clearly indicate a general phonetic change (monophthongization) [ε:i] > [ε:]. The development was initiated ca. 500 and was finished during the 5th century.

Var. 24 is of small significance because only two words are represented. However, it may be interpreted as indicating that the syllable boundary prevented monophthongization. Thus, <TEHIOI> corresponded to (tentative) /té:i-oi/, i.e. there was no diphthong [ε:i] in this word. See further below, p. 192, n. 124.

Conclusion 2

The neutralizations 7b, (7c), 7e, and 7f evidently indicate a narrowing process affecting the first component of the original diphthong /ε:i/, accompanying or following the monophthongization. The change ([ε:i] >) [ε:] > [e:] was probably accomplished before 400.

¹¹⁸ In dedications from the 6th century crasis is frequent: τᾱθεναίαι, τᾱφροδίται etc. This phenomenon has been interpreted as evidence of a monophthongization as early as in the 6th century: cf. Brandenstein, *Sprachwiss.*, p. 76 and Thumb—Scherer II 254. See further below, p. 190, n. 122.

¹¹⁹ The form τετρήρης that occurs 13 times *Hesp.* 9,343,43 and 8 times *IG II*² 1628 was excluded from Var. 25, because it is found in these two documents only, and is orthographically normal there. Also τριήρης *IG II*² 1628,612 was excluded.

Conclusion 3

Neutralization 7f is too infrequent to allow positive conclusions, but the few instances hint at a very close quality of this [e:], or even an i-quality from ca. 350 on. The evidence of the inscription quoted below, n. 120 clearly speaks in favour of this conclusion.

The variant <EI> for <HI>, which was excluded from this work (cf. above, p. 187, n. 115), cannot be studied until after 403.¹²⁰ Lademann, pp. 9—29 shows that its frequency predominates clearly in the last three decades of the 4th century, especially in some morphemes. During the 3rd and the main part of the 2nd century it forms the orthographic norm of the morphemes in question. Then the old <HI> is restored. The variant <EI> was rather frequent also in the period 403—340. A calculation shows that <HI> : <EI> in deme and phyle names occur in the ratio 50 : 7 during that period. Cf. also Mhs, pp. 36—39.

The frequent <EI> for <HI> has been interpreted as indicating an identical phonetic quality of the sounds corresponding to these graphemic sequences, and since <EI> is traditionally assumed to correspond to [e:], it has been concluded that <HI> corresponded to [e:] from the 4th century.¹²¹ This conclusion, which is quite natural when <EI> is assumed to correspond to [e:], must be reconsidered since we have seen that the corresponding vowel was certainly [i:], preferably /_ [C], in the 4th century also /_ [V]. It would seem necessary, then, to conclude that <HI> corresponded to [i:], at least ca. 350. The graphemic neutralization <I> ~ <H> (Vars. 17—19) also points towards this interpretation. But there is the important contrary evidence of Neutralization 4 (Vars. 11—12). The fact that this neutralization is so infrequent, although we should expect a high frequency of exactly this neutralization, and the frequent Neutralization 5a (Vars. 13—14) seem to point to a quality [e:] of the vowel corresponding to <H> (cf. above, p. 186).

It might be that it was more natural for the sequence <HI> to vary with the sequence <EI>, while the single grapheme <H> was

¹²⁰ In a few inscriptions, however, the variation can be proved also before 403, e.g. *Ath. Mitt.* 40,12—14 where Κλειπιίδης is read 8 (or 9) times, Κλειπιίδης 2 (Var. 24,2—3), Κληπιίδης 1 (Var. 25,1) and Κλιπιίδης 1 (Var. 1,38). The inscription is dated 443.

¹²¹ Cf. Schwyz., *GG I* 201 and Mhs, p. 39.

not so easily substituted by the sequence <EI>. However, this explanation does not hold good when we observe that Vars. 2—3 and especially Var. 6 are frequent, although one grapheme is substituted by a graphemic sequence.

Two solutions of the problem are possible: either we should conclude that <HI> corresponded to [i:], but <H> to [e:], or that both corresponded to [i:].

The first alternative presupposes that there was a factor present in [ɛ:i] ([æ:i]) that did not exist in [ɛ:] ([æ:]), which could further a more rapid development into [e:] > [i:]. Since there is no significant difference in distribution between [ɛ:i] ([æ:i]) and [ɛ:] ([æ:]), this factor cannot be sought in the environment. Thus the cause must have been the second component of the diphthong.

That this diphthong underwent changes very early is seen, for example, in the frequent crases of the type τὰ θεναίαι (dat. sg.) in 6th century documents,¹²² which indicate a monophthongization process. For alphabetic reasons we cannot trace the origin of the narrowing process, but a document such as that quoted above, note 120 proves that the phonetic quality of the correspondence of <HI> (<EI>) was already in 443 a very close [e:], perhaps [i:]. Anyhow, we must conclude that the narrowing change had begun long before 403, when it suddenly became evident through the frequent variant <EI> for <HI>.

There seems, then, to be good reason to assume that <EI> for <HI> actually corresponded to [i:] ca. 350, in spite of the infrequency of Neutralization 7f.

As regards <H> the rather frequent Neutralization 6b (Vars. 17—19) constitutes strong evidence for the quality [i:].

There is only the contrary evidence of the very infrequent Neutralization 4 to prevent us from drawing that conclusion unhesitatingly.

But let us assume that <EI> and <HI> corresponded to [e:], and <H> to [ɛ:] in the 4th c., which is the traditional view. Then we would expect much the same high frequency of Neutralizations 7b and 7e (both directions), while Neutralizations 1a, 4, 5a, 6b, 7a, and 7f would be markedly less frequent.

However, this is not the case. Neutralization 5a is many times

more frequent than the corresponding 7b, and Neutralizations 1a, 6b, and 7a also have high (1a) or rather high frequency.

To sum up, it can be stated that there is evidence of an e-quality as well as an i-quality of the sound corresponding to <H>. The same may also be said of <HI>, considering the very infrequent Neutralization 7f.

The question must so far be left open. Cf. further discussion below, pp. 287 f.

- 8a <A> ~ <H> (Variations 27—28)
- 8b <A> ~ <EI> (Variation 29)
- 8c <A> ~ <E> (Variations 30—31)
- 8d <A> ~ <I> (Variation 32)

Since all these neutralizations are between <A> and graphemes corresponding to front vowels, they should be treated as a group. Because all of them are so infrequent, they get some evidential value only when taken together. The total number of instances is 20, among which 8 are context-sensitive.

Conclusion

No definite conclusion can be drawn from these neutralizations. At the most they may be interpreted as hinting vaguely at a close quality of the short /a/.

- 9 <AI> ~ <A> (Variations 33—37)

There are two phonetic changes that can be expected to underlie this graphemic neutralization: [a:i] > [a:] and [ai] > [æ:].

The two changes are related to Variations 33—34 and 35—37 respectively and should be treated separately.

The change [a:i] > [a:], i.e. the loss of [i] / [a:]₋, means that the frequency of the phoneme /i/ was reduced. The change is a dephonologization affecting part of this phoneme, and we shall expect—according to *Principle 2* (pp. 165 f.)—a quite frequent

¹²² Cf. *IG I²* 579, 598, 609, *et passim*.

graphemic neutralization as a consequence, especially as the possibility of orthographic variation is good.¹²³

It can be seen that there is a marked predominance of graphemic neutralization /_# (16 instances) as against /_ [C] (5 instances).

This is mainly due to the fact that the distribution of [a:i] is almost totally restricted to that position. The total number of instances of Vars. 33—34 is comparably small, but it is large enough to allow us to draw positive conclusions. The marking with factor (2) is general in Var. 33, which makes this factor insignificant there. Var. 34 is to be interpreted as inverse spelling.

The chronological distribution of the instances is interesting. There are two distinct groups, one ca. 500—480, and another ca. 350—300. This may be compared with the conditions of Vars. 20—26 and 106—107. These three groups of variations reflect the expected monophthongizations [a:i] > [a:], [ɛ:i] > [ɛ:], and [ɔ:i] > [ɔ:] respectively. In all the three groups the earliest instances occur in the 6th century, then there are only very few cases during the 5th, and finally the frequency increases markedly in the 4th century.

Conclusion

The graphemic neutralization 9 as represented by Variations 33—34 indicates a phonetic change [a:i] > [a:], which started in the 6th century and—after some delay during the 5th—finally came to an end in the 4th century. The change was probably general.¹²⁴

¹²³ This case is exactly parallel to Neutralizations 7a—7f above.

¹²⁴ In some cases with accentuated [i] a syllable boundary /-/ seems to have existed between [a:] and [i], which means that the vowel phonemes were not represented in this case by the allophones that combined into a diphthong but by those occurring elsewhere. Consequently, [i] was of course preserved here as well as elsewhere after /-/ (cf. Mhs, p. 49, 28).

A separate examination of Variations 35—37 gives the following results:

Markings with non-phonetic factors		Environments	
Number of markings	Instances	Preceding tentative phonemes	Following tentative phonemes
	3	/i, e:, o, p, t, k,	/e(:), ɛ:, a:, o,
4	1	d, g, p ^h , t ^h , k ^h ,	ɔ:, u:, p, t, k,
3	50	s, h, l, r, m, n/	g, t ^h , k ^h , s, r, n/
2	48	and #	and #
1	2		
Fully valid	2		
Context-free total	104		
Context-sensitive	2		
Total	106		

The phonetic change to be expected here is a monophthongization [ai] > [æ:]. Since this involves a phonologization (cf. above, p. 166), the transpositional force can be supposed to have been relatively strong.

The question whether there were suitable graphemes or graphemic sequences at hand to give rise to graphemic neutralizations can be answered correctly only in the light of the results of the phonetic evaluation of the graphemic neutralizations treated above.

We have seen that the following changes were certainly accomplished before the end of the 5th c.: [e:] > [i:], [ɛ:] > [e:], and [ɛ:i] > [ɛ:] > [e:] > [e:].

Furthermore, the short vowel /e/ probably had a close quality.

This means that all the graphemes and graphemic sequences <H, E, I, HI, EI> corresponded, generally speaking, to closer and closer long vowels from the 5th c. on, and in some cases (cf. pp. 177 and 185 f.) even earlier.

This means, in turn, that these graphemes and graphemic sequences were no longer as suitable as one would suppose¹²⁵ for

¹²⁵ Only if these graphemes correspond mainly to open front vowels is it natural to expect variation between these and <AI> (cf. Mhs, 34).

variation with <AI> as a reflexion of the rise of a new sound [æ:] of very open quality—at the first stage not much unlike that of [a:]—which was probably the primary result of the monophthongization of [ai].

We find, then, that the grapheme nearest at hand to replace <AI> was <A>. Only in the second place shall we expect neutralizations between <AI> and the graphemes mentioned above.

It is not necessary to interpret the neutralization <AI> ~ <A> as indicating a preserved diphthongal character of the corresponding sound.¹²⁶ On the contrary, it appears necessary to draw the opposite conclusion. This becomes evident by a study of early Latin inscriptions.

The development of the diphthong [ai] is identical¹²⁷ in Latin and Greek, viz. monophthongization into [æ:] > [ɛ:]. This change is reflected in the Latin graphemic system by the neutralization <AI> ~ <A> on the one hand, and <AI> ~ <E(I)> ~ <AIE> ~ <AE> on the other, e.g. in the datives *CIL* I² 41, 43, 45, XIV 4182a, 4186 *Diana* (4182a also contains the form *praitor*) I² 48 *Fortuna*, 60 *Fortuna Divo*, *fileia* [*primigenia*, 359 *Locina*, 360, 362 *Loucina* (but 361 *Loucina*) 379 *Matre Matuta* ... *matrona*, 460 [*Me*] *nerva*, 477 *Flaca*, 580 *Mursina*, 696 *Bestia*, 1445 *Fortuna*, 1581 *Iunone Loucina Tuscolana*, XIV 4155 *Brenia Fortunatae coniugi bene merenti* etc.

These variants are not confined to dative forms (as suggested by Stolz-Schmalz, *LG* I p. 272): *CIL* I² 376 *Cesula Atilia donu(m)* *Diane*, and further 388 *Victorie* ... *queistores* ... *Anaiedio* in the same inscription.¹²⁸

It is remarkable that these evident neutralizations have not been interpreted in the only natural way, namely as reflexions of a monophthongization process at a more or less advanced stage of

¹²⁶ This is the traditional view; cf. e.g. Mhs, p. 34 and Schwyz., *GG* I 195.
¹²⁷ The Latin diphthong /ai/ had partly arisen from /a:i/ e.g. in dat. sg. fem. However, since the shortening of vowel /-V/ took place very early, this long diphthong had become identical with /ai/ already in early Latin. This is also seen in the identical development into /æ/ of original /a:i/ as well as original /ai/, while Greek /a:i/ and /ai/ developed differently.

¹²⁸ *CIL* I² 552 *Painsscos* (= *Panisscos*) may be a graphic metathesis or an instance of the common practice to omit graphemes corresponding to unstressed vowels (cf. *CIL* I² 558 *Proserpnai*) and thus an example of inverse spelling.

development.¹²⁹ It seems to me impossible to evaluate contemporary neutralizations <AI> ~ <A> ~ <E(I)> ~ <AIE> ~ <AE> that sometimes occur in one and the same inscription as evidence for anything else than a monophthongization of [ai].

A comparable case, although not phonologically identical, is provided by the merger of Middle English /ai/ and /a:/ into /æ/ in the late 14th century, which is reflected in the graphemic neutralization <AI> ~ <A>.¹³⁰

The traditional ME graphic distinction <AI> : <A> was retained. In spite of the fact that there did not exist a phoneme /a:/ any more, the scribes continued to write the grapheme <A> in the positions where the corresponding phoneme was /æ/ < /a:/. The neutralization <AI> ~ <A> remained infrequent.

Such a neutralization is quite natural also as a result of the Attic change [ai] > [æ:], because the omission of one of the graphemes (preferably <I>) in the traditional sequence <AI> is nearest at hand as an orthographic transposition of the new sound [æ:].

It has already been stated that the transpositional force of the type of phonetic change that we are concerned with here, i.e. phonologization, is comparably strong. However, the probability of transposition is reduced by the scanty supply of suitable graphemes or graphemic sequences.

It should also be observed that the tendency of transposition is further reduced if the traditional grapheme of graphemic sequence can equally well function as a correspondence to the new phoneme.

¹²⁹ Stolz-Schmalz, *LG* I 75 does not mention the existence of <A> written for <AI> but only treats the variation with <E(I)>. Only p. 272 does he touch on the problem: he classes the forms with <A> as dialectal, i.e. non-Roman, not vulgar Roman forms. Then it is stated: "Für das -ae begegnet unerwartet früh -e, so *Victorie CIL* I² 388 im Maisergebiet, *Diane* in *Pisaurum*".

It is overlooked that both variants occur in the same period, and sometimes in the same inscription, and finally that they occur in inscriptions found in Rome. Cf. also Hehl, pp. 29—33.

¹³⁰ The change involved on the one hand a dephonologization (/a:/ disappeared), on the other a phonologization (the new phoneme /æ/ was established), while the Attic change /ai/ > /æ:/ was a phonologization only, but common to both processes was a change of grapheme-phoneme correspondences, so that <A> came to correspond (partially or totally) to /æ(:)/.

As regards the significance and interpretation of reverse spellings, McLaughlin (p. 82) takes the earliest instance of <AI> for <A> as a reason to "assume that the change had been well established in spoken dialect for some time". Cf. above, p. 172.

Now, this is exactly the case with <AI>. This graphemic sequence could very well be used, even after the diphthong [ai] had been monophthongized into [æ:]. The only disadvantage, and thus the main cause of introducing other graphemes instead of it (orthographic transposition), would be its being a graphemic sequence that had come to correspond, not to two, but to one sound. But this cannot have been a very potent cause of transposition, seeing that the monophthongizations [ei] > [e:] and [ɛ:i] > [e:] did not cause a change of the orthographic <EI> and <HI>, respectively, into <E> or <H>.

Consequently, we should expect, as a result of a monophthongization that implies a phonologization, and only that,¹³¹ rather few instances of graphemic neutralization, and as soon as the new phoneme has established itself, its transpositional force is more and more reduced.

The frequency of Vars. 35—37 shows the following distribution:

century	instances
7th?	1
6th	12
5th	18
4th	64 (or 55)
3rd	11 (or 20)

Because marking with (2) is general in Vars. 35—36 according to the rules of this factor (cf. above, p. 59), the significance of these markings is suspended in these variants. The high frequency of this graphemic neutralization and the high validity of the instances make the total phonetic evidential value of the neutralization high. The neutralization is almost totally independent of environment. It should be observed that the frequency is almost exactly as high /-(#) [C] as /-(#) [V].¹³² Var. 37 represents inverse spelling as far as the instances are context-free.

The fact that <A> for <AI> is equally frequent /-[C] as /-[V] eliminates the traditional assumption that there existed a more

¹³¹ I.e. not implying, for example, a simultaneous dephonologization as in the Middle English case mentioned above.
¹³² This fact has so far been totally overlooked (cf. Mhs, pp. 30—33, Schwyz., GG I 195 f., and others).

weakly pronounced allophone of /i/ in the diphthong [ai] /-[V]. But, if we concluded that [ai] > [a:] in all environments, this [a:]—maybe with a (facultative) semivocalic trace of the second element of the original diphthong—would have merged with the already existing phoneme /a:/ and never developed into MG /ɛ/.¹³³

The only possible interpretation of the variation <AI> ~ <A>, then, is to conclude that the diphthong [ai] was being monophthongized or that the change was already accomplished.

Conclusion

The graphemic neutralization <AI> ~ <A> as represented by Variations 35—37 clearly indicates a monophthongization [ai] > [æ:] in all environments.¹³⁴ This development began already in the first half of the 6th century and was not conditioned by environment. The final accomplishment of the monophthongization seems to have taken place during the 5th century.¹³⁵

¹³³ In isolated cases a change [ai] > [a] actually took place; cf. 'Αθηναία > 'Αθηναία > 'Αθηναία and αεί > αεί (Mhs, p. 33,4).

¹³⁴ The occasional treatment of αι /-[V] (e.g. δειλαῖος Aristoph. Eq. 139, παλαῖος Aristoph. Nub. 1187, παλαῖον Eurip. Elect. 497, δικαῖον IG II² 12141,5 (ca. 250)) cannot be interpreted as evidence for monophthongization, because the phenomenon is found already in Hom. (e.g. ἔμπαιον υ 379). Cf. Schwyz., GG I 236. Only cases such as ἐώρας Soph. OR 1264 and ἐώρασσα OC 1084 may be evident (cf. Wackernagel, IF 25 (1909) 337). But there is always the possibility that copied texts have been corrupted.

Cf. also εἰ and οἰ /-[V] (above, p. 178, n. 102 and below, p. 204, n. 149).
¹³⁵ Nachmanson, p. 53 establishes the supposed assimilations in Var. 37,3—4 (and elsewhere, cf. Vars. 63—64) as a *terminus post quem* for the monophthongization. This theory is refuted by the evidence of Vars. 35—37 as it was interpreted above, but assimilations between [æ:] and [a(:)] are equally possible as between [ai] and [a(:)], and some cases may very well be graphic, not phonetic assimilations (inverse spelling).

The syllable boundary caused a different development in [ai-i] > [a-i] (e.g. ἐλαῖος). This was also the case with e.g. ἀίδιος. For the phonetic cause of this special development see above, p. 192, n. 124.

- 10a <AI> ~ <AE> (Variation 38)
 10b <AI> ~ <AIH> (Variation 39)
 10c <AI> ~ <H> (Variations 40—41)
 10d <AI> ~ <E> (Variations 42—43)
 10e <AI> ~ <E>/<EI> (Variation 44)
 10f <AE> ~ <E>/<EI> (Variation 45)
 10g <E> ~ <AIE> (Variation 46)
 10h <AI> ~ <HI> (Variation 47)

All these neutralizations, except 10f—10g, are between the sequence <AI>, corresponding to the tentative diphthong /ai/, and <A, H, E, I>. All of them (perhaps with the exception of Variation 42) are so infrequent as to lack an evidential value of their own. However, all these neutralizations can and must be treated as a group containing 22 instances. There are 6 instances /₋[V], 10 instances /₋[C], and 6 instances /₋ #.

Conclusion

The graphemic neutralizations 10a—10h represent further evidence for the phonetic change [ai] > [æ:] concluded from Neutralization 9 and possibly a subsequent change [æ:] > [ɛ:].

11 <AI> ~ <I> (Variation 48)

The probable phonetic cause of transposition is the monophthongization of [ai]. The general marking with (2) makes this factor insignificant.¹³⁶ There is, however, no fully valid instance. But the frequency of this neutralization precludes the assumption that all instances are due to non-phonetic causes.

It is remarkable that this neutralization occurs almost exclusively before the middle of the 5th century. There seems to be only one possible explanation of this phenomenon: the primitive omission of one of the components of a graphemic sequence represents the first outcome of orthographic transposition originating from monophthongization.¹³⁷ The inscription cited Var. 48,7—8 contains both

¹³⁶ Cf. above, p. 196.

¹³⁷ This type of graphemic neutralization may also be produced by other kinds of phonetic changes: cf. Neutralizations 20a—20b below, pp. 205 f.

types of omission: $\kappa\acute{\iota}$ and $\chi\acute{\alpha}\rho\epsilon$ (Var. 36,8—9), and cf. 48,1—2; the morpheme { $\kappa\alpha\iota$ } is very often affected by Neutralization 9 (Vars. 35—36). Other morphemes affected by both neutralizations are { $\text{Ἡ}\phi\alpha\iota\sigma\tau$ } 36,2 and 16; 48,3, { $\pi\alpha\iota$ } 36,4—5, 10, and 13—15; 48,4, { $\Pi\alpha\upsilon$ } { $\alpha\iota\tau$ } 36,11—12; 48,9—11, and { $\text{Ἀ}\theta\eta\nu\alpha\iota$ } 35,7, 14, 18, 28, and 53; 36,17; 48,5—6 and 14.

Conclusion

The graphemic neutralization <AI> ~ <I> indicates that the monophthongization process [ai] > [æ:] was at an initial stage during the 6th and the first half of the 5th century.

12 <Υ> ~ <I> (Variations 49—50)

Markings with non-phonetic factors		Environments	
Number of markings	Instances	Preceding tentative phonemes	Following tentative phonemes
2	10	/p, t, k, b, d, g,	/o, ɔ:, p, t, k,
1	27	p ^h , t ^h , s, h, l, r,	b, d, g, p ^h , t ^h ,
Fully valid	9	m, n/ and #	k ^h , s, l, r, m, n/
Context-free total	46		
Context-sensitive	44		
Total	90		

As an underlying cause of this graphemic neutralization we should expect a phonetic change [y(:)] > [i(:)]. Since this implies a dephonologization and because there are suitable graphemes available for variation we should expect quite frequent graphemic neutralizations.

In Neutralization 12 we find this high frequency.¹³⁸ About half

¹³⁸ The traditional opinion about this neutralization is that held by Allen, *Vox Graeca*, p. 65 "Confusion of υ with ι is first occasionally found in Egyptian papyri of the 2—3 c. A.D., but this is probably a regional peculiarity." Now,

the number of instances are context-sensitive, but the evidential value of the rest is high, because of the few markings and the large number of instances. Var. 49 contains 17 context-sensitive instances, and most of the instances of inverse spelling in Var. 50 are of that kind.¹³⁹

Neutralization 12 is represented in almost all consonantal environments, while there are only 7 instances /₋[V].¹⁴⁰ It is further to be seen that there are 51 instances /₋[resonant]₋ and 23 /₋[resonant]. We have found a similar concentration to this environment in Neutralizations 1a, above, (pp. 176 f.) and 2 (p. 182). This similar distribution is clearly significant.

Six instances of Neutralization 12 date from the 6th century. There are 20 instances from the period 500—450. The evidence of the Callixenus-ostraca (49,10—20) proves that the change was on its way as early as in the 480's.

The frequency of neutralization culminates in the 4th century.

Conclusion

The frequent graphemic neutralization <Y> ~ <I> clearly indicates a phonetic change [y(:)] > [i(:)], which started in the position before or after [resonant] as early as in the 6th century. The change was probably accomplished in this position before 450 and elsewhere during the following hundred years. It may be that a somewhat labial quality was preserved /₋[V] even longer.

this opinion is rather remarkable seeing that already Rabehl, p. 12 found four instances in Def. that could not be explained as assimilations and noted: "Ut sint errores scribendi, tamen ex eo intelligi potest pronuntiatione sermonis vulgaris illas duas vocales iam eis temporibus non tantum dissensisse."¹³⁹ The relative frequency of ἡμυσυ as against the normal form may be higher than 25 % (cf. above, p. 53). Thus, its incorporation into the data is somewhat questionable.

¹⁴⁰ The instance 49,1 is not counted here because the metathesis is irrelevant.

- 13a <Y> ~ <YI> (Variation 51)
 13b <Y> ~ <IY> (Variation 52)
 13c <I> ~ <YI> (Variation 53)
 13d <Y> ~ <E> (Variations 54—55)
 13e <Y> ~ <EI> (Variations 56—57)
 13f <Y> ~ <H> (Variation 58)

The following two phonetic changes are to be expected as causes of these graphemic neutralizations: The monophthongization [yi] > [y:] and the merger [y(:)] > [i(:)].

Since both these changes are of the type dephonologization we should expect frequent neutralizations, especially as the possibility of variation between different graphemes and graphemic sequences is very good.

We also find that this is exactly the case: the orthographic transpositional force of the change [yi] > [y:] was so strong as to bring about a changed orthography <YI> > <Y>. The development began early in the 6th century. Already then we find an alternative orthography <YI>/<Y>, which was kept in some morphemes, while in some other morphemes the grapheme <Y> established itself as a norm.¹⁴¹

Consequently, the neutralizations treated here under 13 are only marginal and can provide only some further evidence of the same kind.

Conclusion 1

The orthographic change <YI> > <YI>/<Y> or <Y> (together with the graphemic neutralizations 13a—13c) proves that the monophthongization [yi] > [y:] took place in the 6th century at the latest. The change was general.¹⁴²

¹⁴¹ Cf. Mhs, pp. 59 f. The spelling <Y> in the place of <YI> is found *passim* on archaic vases from the 6th century. Already in that century there occurs a form ὕς (< ὕς < ὕς); cf. Mhs, p. 60,6.

¹⁴² Schwyz., *GG* I 199,5 assumes that [yi] was retained in dat. sg. terminations, "da man das Dativzeichen -i nicht missen konnte". The assumption is unfounded, because there are examples in poetry of monosyllabic <YI> (Kühner—Blass I 213), and because one should not expect many instances, seeing that the nouns on -υς are very few and infrequent (cf. Lademann, p. 40, one single instance -υι).

By the way, Schwyz's assumption is inconsistent, seeing that he accepts

Evidence for a further change [y(:)] > [i(:)] we have already found in Neutralization 12. Now the question arises why Neutralizations 13e—13f (and 13d) are so infrequent, seeing that the graphemic sequence <EI> corresponded to an i-sound around 400 (cf. above, pp. 177 f.), and <H> to a very close [e:] (p. 186). It is also remarkable that Neutralization 13e affects one single morpheme.¹⁴³

However, the single grapheme <I> was nearest at hand to replace <YI> and <Y>.

Conclusion 2

The conclusion drawn above (p. 200) from Neutralization 12 is not affected by the infrequent Neutralizations 13e—13f.

14 <Y> ~ <O> (Variations 59—60)

No positive conclusions can be drawn from the slight evidence of this infrequent neutralization.

15 <OI> ~ <O> (Variations 61—64)

Markings with non-phonetic factors		Environments	
Number of markings	Instances	Preceding tentative phonemes	Following tentative phonemes
3	3	/p, t, b, d, p ^h , t ^h , k ^h , h, l, r, m, n/ and #	/e:, ε:, a(:), o:, k, d, k ^h , s, l, r, n/ and #
2	6		
1	14		
Fully valid	9		
Context-free total	32		
Context-sensitive	7		
Total	39		

the disappearance of the dative morpheme in *αι*, *ωι*, and—especially early—in *ηι* (l.c., p. 201).

¹⁴³ The orthographic norm is *Ἰαεῖθου* that occurs 8 times out of the total number 13. Thus the inclusion into the data forms an exception.

We should expect a monophthongization of [oi] to be the possible cause of this graphemic neutralization. The graphemic conditions, as well as the type of phonetic change, are parallel to those of Vars. 35—37 (Neutralization <AI> ~ <A>).¹⁴⁴ Consequently we should expect a rather frequent neutralization <OI> ~ <O>.

In comparison with Vars. 35—37 the frequency of Vars. 61—64 is rather low, but it is high enough to be significant. However, the neutralization <OI> ~ <O> is really frequent only in the morphemes {Λευκονοι} and {ποι} /-[front vowel].¹⁴⁵ Furthermore, the early date of the first instances of the variant <O> for <OI> in {ποι} is remarkable. The variant is represented before 500 in this morpheme only, apart from the three earliest instances Var. 62,1—2 and Var. 64,1. Cf. above, p. 108, n. 75.

The study of environments is interesting. There are only 14 instances of neutralization /-(#)[V], but 25 /-(#)[C].¹⁴⁶ Consequently it cannot be maintained that this neutralization is limited to certain environments.

As a whole, Neutralization 15 shows a markedly increasing frequency from the 4th century (14 instances before 400 and further 25 after that year). It is notable that Var. 63 begins as late as 338/7.

Vars. 63—64 should evidently be interpreted as inverse spelling, with decisive evidential value.¹⁴⁷

¹⁴⁴ Since <Y> corresponded to a sound similar to [i(:)] already in the 5th c. we shall not expect variation <OI> ~ <Y> as a first outcome of a process of monophthongization of [oi], just as little as variations <AI> ~ <E(I)> ~ <H> are probable as a primary result of the change [ai] > [æ:] (cf. above, pp. 193 f.).

¹⁴⁵ The instance 61,3 shows that the neutralization was not totally restricted to this environment (cf. Mhs, p. 57,2). The form *στοά* < *στοιά (the form is not found in Attic; cf. Mhs, p. 56,1) is apparently an example of a phonetic change [oi] > [o] (cf. 'Αθηναία > 'Αθηναία > 'Αθηναία, above, p. 197, n. 133).

¹⁴⁶ As was the case with the neutralization <AI> ~ <A> /-[C], this fact has been totally overlooked (cf. Mhs, pp. 56 f. and Schwyz., GG I 195 f.).

¹⁴⁷ This inversion is parallel to that of Var. 37. Consequently, its importance is very high (cf. McLaughlin, p. 82), especially since there are 7 fully valid instances of Var. 63. (Var. 64 is less evidential owing to the many markings.)

The traditional idea reported by Schwyz., GG I 195 "Umgekehrte" Schreibungen (bzw. Aussprachen) wie *ὀγδοίη* für richtiges *-οη*, *βοιηθῶ* statt *βοιηθῶ* (nach *ποιεῖ* : *ποιεῖ* u.ä.) sind bei einer Aussprache von *οι* als *ü* nicht denkbar", is based on the supposition that Greek spelling was phonetic. It is of course absurd to suppose that *ὀγδοίη* was pronounced [ogdoíε:]; the <OI> for <O> reflects the fact that <OI> did no longer correspond to a diphthong [oi].

to a monophthong) a phonetic change of the second component of the diphthong [eu] into a (bi)labial fricative, probably with two allophones: a voiceless [Φ] /-[voiceless] and a voiced [β] /-[voiced].¹⁵²

The change was a rephonologization. According to our tentative phoneme inventory (p. 37) there did not exist any fricatives in the Attic the period 500—440 except /s/ and /h/. This implies that no graphemes or graphemic sequences were immediately suitable for replacing <Υ> through transposition caused by such a change. The only possible grapheme would be <Β>. We know that Attic [b] changed into MG fricative [v]. If that change was contemporary with or previous to [eu] > [eΦ]/[eβ] > [ef]/[ev] we might expect neutralizations such as <ΕΥ> ~ <ΕΒ>, <ΕΥ> ~ <ΕΒΥ>, <ΕΥ> ~ <ΕΥΒ> etc.¹⁵³

We observe that there is only one instance of this type in our material (Neutralization 20e).

There is only one other way in which a change of the second component of [eu] into a fricative consonant could be reflected in the graphemic system, viz. through omission of one of the graphemes <ΕΥ>, preferably <Υ>.¹⁵⁴ However, this is not so natural as was the case with <ΑΙ>, <ΥΙ> and <ΟΙ>, where the phonetic changes involved monophthongizations. Consequently we should not expect a high frequency of the neutralizations 20a—20b.

Furthermore, it should be borne in mind that the grapheme <Υ> corresponded, after the change /u(:)/ > /y(:)/, partly to [u] (in diphthongs), partly to /y(:)/. The special reference of <Υ> in diphthongs might have reduced the tendency of graphemic neutralization caused by a change [eu] > [eΦ]/[eβ] (rephonologization), since even after that change the grapheme <Υ> could very well be retained in its old function, i.e. as referring in the position in question to another sound than elsewhere. This is true especially after the change [y(:)] > [i(:)] (cf. above, Neutralizations 12 and 13a—13f).

¹⁵² A bilabial articulation must be presupposed as an intermediate stage between the Attic vocalic [u] and the MG labiodental [f]/[v]. Furthermore, considering the general tendency of assimilation in Greek from the earliest times down to MG, it may be supposed that the complementary allophonic variation originated almost from the very beginning of the change.

¹⁵³ Such neutralizations occur in Boeotian in the 3rd century; cf. Schwyz., *GG* I 198 β.

¹⁵⁴ Cf. Schwyz., *GG* I 199 Zusatz.

Neutralizations 20a—20b are fairly frequent, especially considering the conditions just discussed. In all, there are 40 instances, 5 of which are marked with three non-phonetic factors. However, the general marking with (2) in Vars. 81 and 83 suspends the significance of that factor. We can only maintain that all instances of these variants cannot possibly be due to careless writing.

The distribution of Neutralizations 20a—20b is interesting. It is to be observed that there is a marked predominance of neutralization /-[s]#. There are 21 instances in that position. In the second place the neutralizations occur preferably /-[voiceless stop] (aspirated or not): 12 instances.¹⁵⁵

It is obvious that the first of these restrictions of environment is due to phonetic causes. The phonetic affinity of the sounds [Φ] and [s], constituted by their common fricative quality, had as a result that orthographic transpositions were more frequent in this environment than elsewhere. The considerable frequency indicates that the cause of origin must have been phonetic in a number of instances.

The doubling of <Σ> in Var. 81,23—24 becomes explicable in the light of the theory that [eu] had changed to [eΦ]: the grapheme <Σ> was used to correspond to both the fricatives.

The high frequency of instances /-[voiceless stop] can perhaps be explained as due to the fact that the voicelessness of the stop must probably have strengthened the tendency to leave the new sound [Φ] without a corresponding grapheme, i.e. to omit one of the graphemes <ΕΥ>.

Vars. 82 and 84 can be interpreted as inverse spellings. Furthermore, Var. 83 may also be characterized as a sort of inverse spelling, namely of the second order: it is inverse 1) as against <ΕΥ>, and 2) as against <Ε>. The phenomenon can be described in the following way:

If <ΕΥ> no longer corresponded to two vowels but to one vowel and to one consonant that had no graphemic counterpart of its own, either of these autographemes, preferably <Ε>, but also <Υ>, might sporadically be used instead of <ΕΥ>.

Most of the 7 (or 8) instances dating from the 6th century are

¹⁵⁵ The two instances of Neutralization 20c are also found in these positions respectively (if it is not considered that in Var. 85,1 the voiceless stop is preceded by a word boundary).

dubitable (3 markings). There are 14 (or 15) instances during the 5th, and 11 (or 12) during the 4th century.

Conclusion 1

The graphemic neutralizations 20a—20e indicate a phonetic change [eu] > [eΦ]/[eβ], which probably began during the 6th century and developed during the following two centuries. The obvious graphic dependence on environment may be interpreted as an indication of a corresponding restriction of the phonetic change, but it is also possible that the phonetic change was general but only sporadically caused graphemic neutralizations in positions other than before [s] or [voiceless stop].

There are 5 instances before vowel, three of which date from the 4th century. We may perhaps conclude that the change became general and was totally accomplished during the 4th century.

Conclusion 2

The almost total lack of variations with (one single instance 247/6) clearly indicates, in the light of the evidence of Neutralizations 20a—20d, that [b] did not change into a fricative during the period comprised by the investigation.

21a <EY> ~ <IY> (Variation 88)

21b <EY> ~ <HY>¹⁵⁶ (Variation 89)

These neutralizations are so infrequent and heavily marked that they are totally insignificant.

22a <AY> ~ <A> (Variation 90)

22b <AY> ~ <AO> (Variation 91)

We know that the development of /au/ was parallel to that of /eu/.

¹⁵⁶ This neutralization is studied only in one direction, i.e. <HY> for <EY> is treated, not <EY> for <HY>. This is because the orthographic norm <HY> was replaced by <EY> during the 4th c. (cf. Mhs, p. 171,14). The original long diphthong [ε:u] shared the development of [eu] (MG [εf]/[εv]).

The second component of the diphthong changed into fricatives: [Φ]/[β] (cf. above, p. 206).

The presupposed long diphthong [a:u] is thought not to have shared this development but to have lost its second component. But there is only one single example to show this, namely ἐξυτος > αὐτός > MG ἄτος.¹⁵⁷ This development must of course have preceded the equalization of vowel length (cf. below, pp. 218 f.).

The change [au] > [aΦ]/[aβ], as being totally parallel to [eu] > [eΦ]/[eβ], may be expected to produce graphemic neutralizations of the same kind as [eu]. However, it must be borne in mind that [eu] had a much higher absolute textual frequency than [au]. Consequently we should expect still fewer instances of Neutralization 22a than of Neutralizations 20a—20e.

It is to be observed that there exists only one type of variation: <A> for <AY>. No examples of inverse spelling <AY> for <A> are found, nor does a variation <AY> ~ <Y> exist as counterpart of Vars. 83 and 84.

On the other hand, there is the variation <AY> ~ <AO>, which has no counterpart <EY> ~ <EO>.

Neutralization 22a is represented only /-[voiceless stop] and /-[s]. This is similar to the conditions of Neutralizations 20a—20d.

Conclusion

The graphemic neutralization 22a hints at a phonetic change [au] > [aΦ]/[aβ] at its beginning.

The isolated instance 90,4 (and perhaps 90,5; cf. Mhs, pp. 154,5 and 155, n. 1326) cannot by a long way be looked upon as sufficient evidence to show a special change [a:u] > [a(:)].

Neutralization 22b indicates a retained phonetic character [u] of the second component of the original [au]. This fact, together with the absence of inverse spellings, indicates that the change in question was not yet accomplished.

23 <O> ~ <OY>¹⁵⁸ (Variation 92)

The frequency of this neutralization is insignificant and prevents

¹⁵⁷ Cf. Mhs, p. 61,3, 154,5, and 155,12; and further Schwyz., GG I 203.

¹⁵⁸ Only <OY> for <O> is investigated, because <O> and <OY> were joined

us from concluding that the vowel corresponding to <OY> had an open quality [o:]¹⁵⁹ (and/or that <O> represented a vowel of close quality) in the period 400—340. Cf. the discussions below under Neutralizations 25a (pp. 212 f.) and 27a (pp. 213 f.).

24 <Y> ~ <O>/<OY> (Variations 93—94)

This neutralization is much too infrequent to be interpreted as indicating a back vowel quality [u(:)] of the sound corresponding to <Y>, and such a conclusion is also refuted by the strong contrary evidence of Neutralizations 12 and 13a—13f (see above, pp. 199—202), that prove that <Y> corresponded to a front vowel.

The strong evidence of Neutralizations 12 and 13a—13f as against the negligible Neutralization 24 proves that the change [u(:)] > [y:] must have taken place very early, certainly before the middle of the 6th century (Var. 49). However, it may very well have been accomplished much earlier, because the change was a rephonologization, which need not cause orthographic transposition at all, if the corresponding grapheme can equally well be used after the corresponding phoneme has acquired a changed phonetic quality and there are no other graphemes apt to replace it (cf. above, pp. 166—169). This was exactly the case. As by the change Lat. [u] > Fr. [y], no grapheme but the traditional one was suitable. Only when [y(:)] had been delabialized so as to be similar to [i(:)] is orthographic transposition to be expected.

into the orthographic norm <O>/<OY> (as corresponding to /u:/) down to ca. 350.

¹⁵⁹ If there had existed a short and a long back vowel of the same quality simultaneously, viz. [o(:)], these conditions would have produced a rather frequent graphemic neutralization of the type Var. 92, because the opposition long : short alone could not prevent neutralization, especially not after it had begun to be eliminated (cf. below, pp. 218 f.).

Bartoněk, *Long-vowels*, p. 114 states a safe *terminus post quem* for the change [u(:)] > [y(:)], viz. the time when the orthographic norm <EY>, <AY> (with <Y> corresponding to [u]), was established, i.e. before or ca. 700. There is nothing that could prevent the change [u(:)] > [y(:)] from taking place soon after that date, neither that the "hole in the pattern" produced by this change could very well be eliminated immediately by another change [o:] > [u:] (cf. Bartoněk, *l.c.*, pp. 127 ff.).

25a <Ω> ~ <O> (Variations 95—96) 25b <Ω> ~ <OΩ> (Variation 97)

Markings with non-phonetic factors		Environments	
Number of markings	Instances	Preceding tentative phonemes	Following tentative phonemes
3	13	/i, e(:), y, p, t, k, b, d, g, p ^h , t ^h , k ^h , s, h, l, r, m, n/	/a, p, t, k, d, p ^h , t ^h , k ^h , s, r, l, m, n/ and #
2	45		
1	38		
Fully valid	26		
Total	122		

There are two phonetic changes that may be expected to have produced these graphemic neutralizations: a narrowing of [o:] or an opening of [o], and further the equalization of vowel length. Both changes imply loss of phonemes, i.e. dephonologization. A graphemic neutralization <Ω> ~ <O> as a result of either or both of these phonetic changes is very probable.

The undifferentiated OA alphabet prevents us from studying the graphemic neutralization of Variation 95 during the period before 403, and this is also the well-founded reason for the many markings with factor (4). However, the number of instances with two or fewer markings is large, even considering the favourable conditions of orthographic variation. That alphabetic causes (factor (4)) do not suffice as an explanation of Neutralization 25a is to be seen from the fact that its high frequency lasts throughout the 4th and the 3rd centuries.

Vars. 96—97 are looked upon as inverse spellings.

Neutralization 25a is represented in almost all environments. It must be considered that [o:] very seldom occurs /-[V].

Conclusion

The graphemic neutralizations 25a—25b provide evidence of a general phonetic change resulting in an identical quality of the (tentative) /o:/ and /o/. This process probably began ca. 500 and

was finished in the 4th century.¹⁶⁰ Cf., however, the reservation made below, p. 215.

The problem of vowel length will be discussed below (pp. 218 f.) through an integrated treatment of all neutralizations bearing upon this problem.

26a <ΩI> ~ <OI> (Variations 98—99)

26b <ΩI> ~ <OY> (Variation 100)

The same phonetic changes may be expected to have caused these neutralizations as well as Neutralizations 25a—25b. We may, then, expect a high frequency of neutralization.

Var. 99 is interpreted as inverse spelling.

It is to be observed that Neutralization 26a does not (with one single exception) occur until 363/2, while Neutralization 25a is quite frequent during more than one century before that year (especially if considered that Var. 95 does not comprise the time before 403). However, its frequency is considerable from ca. 350 on.

It is to be noticed that Vars. 63, (64),¹⁶¹ and 107 do not begin until ca. 350 either. It cannot be definitely decided whether this coincidence is significant or not. However, it might be that it should be interpreted as a reflexion of simultaneous monophthongizations [ɔ:i] > [ɔ:] and [oi] > [e:] or [y:]: when <ΩI> as well as <OI> had come to correspond to single vowels orthographic variation between them can be expected. This would then be a possible additional cause of transposition beside the change [ɔ:] > [o:] and the equalization of vowel length.

Neutralization 26a is represented 13 times /_# as against 14 elsewhere. This is mainly due to the restricted distribution of <ΩI> (as predominant in this position).

¹⁶⁰ Before this change took place the change [ɔ:] > [u:] must have been accomplished. Otherwise MG /u/ would not exist.

Thus the opinion of Lasso de la Vega, *Emerita* 24 (1956) 265 that this change took place as late as in the 4th century B.C. is proved by graphemic evidence to be false. Besides, there is the fairly safe *terminus ante quem* provided by the Boeotian adoption of Ionic-Attic <OY> for their [u(:)].

¹⁶¹ The earliest four instances of Var. 64 are so heavily marked that they can almost be left out of consideration.

Conclusion 1

The evidence of the graphemic neutralization <ΩI> ~ <OI> seems to indicate that the open quality [ɔ:] was preserved in the diphthong [ɔ:i], perhaps until its monophthongization.

Conclusion 2

The chronological coincidence of Vars. 63, (64), and 107 with Neutralizations 26a (and 26b) points to simultaneous monophthongizations of [ɔ:i] and [oi] before 350.

27a <O>/<OY> ~ <Ω> (Variation 101)

27b <O>/<OY> ~ <OΩ> (Variation 102)

These neutralizations are concentrated (with one single exception) to the 5th and the beginning of the 4th century, i.e. the period of transition from the OA to the Ionic alphabet. Variation 101 may be compared with Variations 13 and 14. It is immediately seen that the latter variations did not cease when the Ionic alphabet had been accepted. This proves that the inverse spellings with <H> had causes other than alphabetic (factor (4)), while in Variation 101 this factor most probably played a much more important part.

We have seen in Neutralizations 25a—26b that [ɔ:] and [o] probably developed into one sound from the beginning of the 4th century. This means that <Ω> corresponded henceforth to a vowel of comparably close quality. If, then, the phoneme normally corresponding to <O>/<OY> had a quality more open than [u:] we would expect a high frequency of the graphemic neutralization <Ω> ~ <O>/<OY> during the 4th and 3rd centuries. But there is no variation <O>/<OY> for <Ω> and only one instance of Var. 101 after the beginning of the 4th century.

Neutralizations 27a and 27b occur almost exclusively /_# {<Σ>}. This restriction is striking, even considering the high frequency of /u:/ in these positions.

Conclusion

Since there does not exist any variation $\langle O \rangle / \langle OY \rangle$ for $\langle \Omega \rangle$ (inverse spelling), and further, considering the chronological coincidence of Neutralization 27a with the period of transition from the OA to the Ionic alphabet, and its limited distribution, this graphemic neutralization cannot be interpreted as indicating an open quality [o:] of the sound corresponding to $\langle O \rangle / \langle OY \rangle$.¹⁶²

As regards the vowel corresponding to $\langle \Omega \rangle$ Neutralizations 27a—27b may perhaps be said to support the conclusion drawn from Neutralizations 25a—25b that its quality was [o(:)] from the beginning of the 4th century.

28a $\langle \Omega \rangle \sim \langle A \rangle$ (Variations 103—104)

28b $\langle \Omega I \rangle \sim \langle AI \rangle$ (Variation 105)

Unfortunately, it cannot be maintained that Vars. 103 and 105 are complete. This is due mainly to allographic causes. The graphemes $\langle \Omega \rangle$ and $\langle A \rangle$ (and $\langle \Delta \rangle$) each have an allograph $\langle \Lambda \rangle$. Generally such free allographic variation is orthographically irrelevant, because it is undoubtful what grapheme the allograph is a member of (cf. above, p. 58). But the fact that this is not true in the graphemes $\langle \Omega \rangle$ and $\langle A \rangle$ became obvious through the discovery of two undoubtful instances of $\langle A \rangle$ written for $\langle \Omega \rangle$ ¹⁶³ (verified by examination of the original). Consequently, it is evident that some instances of the allograph $\langle \Lambda \rangle$ written in place of $\langle \Omega \rangle$ are meant by the writer to be members of the grapheme $\langle A \rangle$, not $\langle \Omega \rangle$. Since the allograph $\langle \Lambda \rangle$ of the graphemes $\langle A \rangle$ and $\langle \Omega \rangle$ respectively has almost the same form and because the editions often do not account for graphic details,¹⁶⁴ it is quite possible that more instances of the grapheme $\langle A \rangle$ (represented by the allograph $\langle \Lambda \rangle$) in the place of $\langle \Omega \rangle$ may exist.

¹⁶² The only evidence for this quality would be the negligible Variation 92 (cf. above, p. 116).

¹⁶³ Doric forms such as δᾶμος, τᾶν etc. in a few documents of clearly non-Attic character fall outside the data (cf. above, p. 70).

¹⁶⁴ Viz. if the inscriptions are published without a photograph, facsimile, or explicit commentary.

However, there is good reason to suppose that the frequencies of Vars. 103 and 105 are not comparable by a long way with that of Vars. 95 and 98. This conclusion is based on the fact that there is only one single instance of inverse spelling (Var. 104,1) as compared with the high frequency of Var. 96 (and Var. 99).

Conclusion

Considering that the material of Neutralizations 28a—28b is probably incomplete, they may be said to indicate vaguely an open quality of the phoneme corresponding to $\langle \Omega \rangle$ and/or a back quality [a:] of the phoneme corresponding to $\langle A \rangle$. Anyhow, their low frequency as compared with the strong contrary evidence of Neutralization 25a (above, pp. 211 f.) prevents us from drawing a definite conclusion.

29a $\langle \Omega I \rangle \sim \langle \Omega \rangle$ (Variations 106—107)

29b $\langle \Omega I \rangle \sim \langle \Omega II \rangle$ (Variation 108)

We may expect a monophthongization [ɔ:i] > [ɔ:] to have been the cause of origin of Neutralization 29a. Since the change was a dephonologization, in so far as the frequency of /i/ was reduced, we should expect a high frequency of neutralization.

It is to be seen that there are only few instances before 400, while the frequency increases markedly from the beginning of the 4th century. The fact that there are only three instances in the 3rd c. is remarkable.

Variation 106 is represented 13 times /_# as against 7 times elsewhere. This is mainly due to the high frequency of [ɔ:i] in that position.¹⁶⁵

The inverse spelling of Var. 107 is almost totally restricted to the morpheme {σω}. This limitation detracts considerably from the evidence of this variation, but there are the two fully valid instances 107,2—3.¹⁶⁶

¹⁶⁵ This is parallel to /ε:i/ and /a:i/ (Neutralizations 7 and 9, above, pp. 187 and 191).

¹⁶⁶ For the importance of inverse spellings cf. above, p. 172.

Conclusion

The graphemic neutralization $\langle \Omega I \rangle \sim \langle \Omega \rangle$ indicates a monophthongization process $[\text{o:i}] > [\text{o:}]$ taking place from the 5th century, which was probably finished before the middle of the 4th century. The change was probably general.¹⁶⁷

30a $\langle \emptyset \rangle \sim \langle \alpha \rangle / - \left\{ \begin{smallmatrix} \langle P \rangle \\ \langle \Lambda \rangle \end{smallmatrix} \right\} \text{ or } \left\{ \begin{smallmatrix} \langle P \rangle \\ \langle \Lambda \rangle \end{smallmatrix} \right\} -$ (Variation 109)

30b $\langle \emptyset \rangle \sim \langle \alpha \rangle / - \langle X \rangle$ (Variation 110)¹⁶⁸

These neutralizations occur only in strictly private documents—with one single exception—(all instances are marked (1)). Only Neutralization 30a has a significant frequency.

All instances except two (perhaps 3) are dated before 460.

Nine instances are found between [voiceless stop] and [resonant].

Conclusion

Neutralization 30a shows an (optional) syllabification of [l] and [r], which was probably restricted to certain social groups above all during the 6th and 5th centuries.

31 $\langle \alpha \rangle \sim \langle \alpha \alpha \rangle$ (Variations 111—112)

Var. 111 as a whole and Var. 112, 1—4 date from the period 530—470, while the remaining instances of Var. 112 (with one exception) date from ca. 350—300.

The first group was produced during the period when the practice of doubling of syngraphemes was introduced and established. Var. 112 is to be interpreted as inverse spelling.

¹⁶⁷ The two instances of Neutralization 29b—if significant at all—support these conclusions: the extra $\langle I \rangle$ may have seemed necessary as a correspondence to the phoneme /i/, after $\langle \Omega I \rangle$ had come to correspond to $[\text{o:}]$, not to $[\text{o:i}]$. In the proper noun $\Sigma\omega\lambda\lambda\omicron\varsigma$ the syllable boundary prevented monophthongization. The phonetic pattern was $[\text{o:}-i]$, not $[\text{o:i}]$.

¹⁶⁸ The instance 109, 11 could also be sorted under this variation.

Conclusion

Var. 111 and Var. 112, 1—4 indicate a certain tendency of doubling of autographemes corresponding to /V:/ analogically to the changed orthography $\langle \sigma \sigma \rangle$ corresponding to /C:/ . The low frequency shows that this tendency was undecided and sporadic.

32 $\langle \emptyset \rangle \sim \langle \alpha(\alpha) \rangle$ (Variations 113—114)

The evaluation of this neutralization is very difficult, because the material is so heterogeneous. Furthermore, it is very probable that factor (2) has been the real cause of a great number of instances. However, this can only be supposed, and the general marking with (2) suspends the significance of this factor in this neutralization.

The following observations can be made:

Graphemes corresponding to long vowels or diphthongs are seldom omitted as compared with those corresponding to short vowels. The ratio is 6 : 37 in Var. 113 and 23 : 86 in Var. 114. It is to be observed that the relative frequency of this group is higher in Var. 114, just as the absolute frequency of this variation is much higher, which was to be expected.

Neutralization 32 very seldom occurs $/ - \langle \alpha \rangle$; the ratio is 9 : 35 in Var. 113 and 8 : 101 in Var. 114.

There are 30 instances of Var. 113 $/ \langle \sigma \rangle - \langle \sigma \rangle$ and 70 instances of Var. 114 in this position.

No autographemic sequences except $\langle \Omega I \rangle$, corresponding to tentative /oi/, are omitted.¹⁶⁹

Conclusions

Instances of Neutralization 32 $/ - \langle \alpha \rangle$ may perhaps be interpreted as indicating a phonetic similarity of the two vowels corresponding to the omitted grapheme and the following or preceding one, or a tendency of assimilation between the two vowels. Either of the graphemes concerned might be omitted; cf. note 169.

¹⁶⁹ Hatzidakis, KZ 30 (1890) 362 suggest that writings such as Var. 114, 6 and 24 might indicate that the sounds corresponding to $\langle \Omega I \rangle$ and $\langle H \rangle$ had become similar. The two instances Var. 113, 1 and 14 may be interpreted as inverse spellings as against those.

The predominant omission of graphemes corresponding to short vowels (accentuated or not) might perhaps be interpreted as a reflexion of a somewhat weaker articulation of short vowels, accentuated as well as unaccentuated.¹⁷⁰

However, it is to be observed that neutralization /<σ>-<σ> is equally frequent in Var. 113 (accentuated vowels) as in Var. 114. To conclude that vowels in general had an (optional) weak pronunciation in this position is impossible.

Consequently the conclusion about short vowels is very uncertain.

Likewise, it is not possible to draw any conclusion from Neutralization 32 as to the problem whether the Attic accent was dominated by pitch or stress.¹⁷¹ At most we may make a negative conclusion and maintain that the accent could not have been dominated by stress.

Vowel length

The following orthographic variations are partially or totally relevant for the question of vowel length: 3, 5, 6, 13, 14, 15, 18, 22, 27, 37, 39, 42, 43, 46, 47, 53, 61, 62, 63, 64, 72, 92, 93, 95, 96, 98, 99, 104, and 112.

The following variations are partially relevant: 3 (before ca. 350 the sequence <EI> only is relevant),¹⁷² 42 (only the instance 42,6), 61, and 62¹⁷³ (not relevant until 403).

Since the equalization of vowel length means a dephonologization and the phoneme /:/ was very frequent, we should expect frequent graphemic neutralizations, especially after the introduction of the autographemes <H> and <Ω> (403) and the change of orthographic norm <O>/<OY> and <E>/<EI> into <OY> and <EI> respectively (ca. 350).

Consequently the marked increase of frequency after ca. 400 is

Markings with non-phonetic factors		Period	Instances
Number of markings	Instances		
	60	550—500	9
	141	500—450	29
3	192	450—400	32
2	109	400—350	75
1	502	350—300 ¹⁷⁴	254
Fully valid	9	300—250	74
Context-free total	511	250—200	38
Context-sensitive		Total	511
Total			

partly due to the greater possibility of neutralization after that date. Thus the increase of frequency during the period 400—350 may for that reason be said to be of small significance. But the trebled frequency (as compared with the preceding period) in the period 350—300 cannot be explained in this way.

The total number of instances is fairly large, even considering the favourable conditions of neutralization just discussed. The number of instances marked with more than two factors is small as compared with the total amount.

The independence of environment has been shown above under the neutralizations respectively.

Conclusion

The numerous graphemic neutralizations between graphemes or graphemic sequences corresponding to long vowels or diphthongs and those corresponding to short vowels, occurring independently of environment and in high frequency, clearly indicate a general¹⁷⁵ equalization of vowel length. The development seems to have begun as early as in the 6th century and went on during the following one and a half centuries, until it was accomplished about 350.

¹⁷⁴ Instances dated "ca. 350" are counted here.

¹⁷⁵ A tendency of shortening a long vowel /_ [V] is observed from the earliest times. This also concerned diphthongs: *ei*, *ai*, *oi* are not seldom treated as short syllables (cf. above, pp. 178, n. 102, 197, n. 134, and 204, n. 149).

¹⁷⁰ Kretschmer's supposition (Kr., p. 124) that vowels were apt to disappear, if they were short and unaccentuated, is disproved by the fact that Neutralization 32 comprises 70 instances of omission of other vowels as against 83 omissions of short and unaccentuated vowels.

¹⁷¹ If the neutralization had been strictly confined to graphemes corresponding to (short) unaccentuated vowels, it might have been possible to conclude that stress was a predominating factor of Attic accent.

¹⁷² Before ca. 350 the grapheme <E> corresponds both to /e:/ and /e/.

¹⁷³ Before 403 the grapheme <O> corresponds both to /o:/ and /o/.

- 33a <Φ> ~ <Π(Π)> (Variation 115)¹⁷⁶
 33b <Φ> ~ <Ψ> (Variation 116)
 33c <Φ> ~ <ΥΦ> (Variation 117)
 33d <Β> ~ <Π> (Variation 118)
 33e <Β> ~ <Φ> (Variation 119)
 33f <Β> ~ <Θ> (Variation 120)
 33g <Φ> ~ <Χ> (Variation 121)
 33h <Β> ~ <Μ> (Variation 122)

The phonetic changes to be expected are the development of the voiceless aspirated stop [p^h] into a (bi)labial voiceless fricative [Φ], and of the voiced stop [b] into a (bi)labial voiced fricative [β]. Such changes are rephonologizations. Since labial fricatives did not exist in Attic originally, no graphemes corresponded to such sounds. Consequently there are, strictly speaking, no graphemes or graphemic sequences really suitable for neutralization.¹⁷⁷ The alternative nearest at hand to replace the orthographic norm would probably be zero <Θ>, and perhaps <Μ>.

If however, the fricatives in question had arisen previously or simultaneously through other changes we might expect frequent neutralizations between <Φ>, <Β>, and <Υ> / {<Ε> / {<Α>}-, since these graphemes would then have become members of the same phonogramme, i.e. they corresponded to the same phoneme.

It may be observed that only Neutralizations 33c and 33e—33h are of that kind, comprising 8 instances in total, among which 3 are context-sensitive.

On the other hand Neutralizations 33a, 33b, and 33d contain together 16 instances, all of them context-free. The context-sensitive <Φ> for <Π> should also be remembered (note 176). These neutrali-

¹⁷⁶ Neutralization 33a is studied in one direction only, because the frequent instances of <Φ> in place of <Π> have been found always to be context-sensitive, i.e. they may have been caused by assimilation or metathesis (cf. Mhs, pp. 102 f.). In some cases the forms with <Φ> predominate markedly e.g. Φερρέφαττα, Φερσεφόνη.

¹⁷⁷ Cf. above, p. 206.

Schwyz., *GG* I 203 makes a principally correct but somewhat too general statement "Über die Entwicklung der Konsonanten ... lässt sich viel weniger Genaues sagen als über die der Vokale und Diphthonge. Da Zusammenfall verschiedener Konsonanten nur zur Seltenheit eingetreten ist, blieb hier die Schrift — auch ohne archaisierende Tendenzen — wesentlich konstant."

zations constitute evidence of a stop quality of the phonemes corresponding to <Φ> and <Β>.

Conclusion

The almost total lack of evidence for the expected phonetic changes and the significant counterevidence clearly indicate that the changes in question had not taken place during the period comprised by the investigation.¹⁷⁸

- 34a <Θ> ~ <Τ> (Variations 123—124)¹⁷⁹
 34b <Θ> ~ <ΤΘ> (Variation 125)
 34c¹⁸⁰ <Δ> ~ <Τ> (Variations 126—127)
 34d <Θ> ~ <Δ> (Variations 128—129)
 34e <Θ> ~ <Ο> (Variation 130)
 34f <Δ> ~ <Ο> (Variation 131)
 34g <Θ> ~ <Σ> (Variation 132)
 34h <Τ> ~ <Σ> (Variations 133—134)

The phonetic changes to be expected are the rephonologizations [t^h] > [θ] and [d] > [ð]. The Attic dialect originally possessed one dental (or alveolar) fricative, viz. /s/, with a voiced allophone [z].

The graphemes <Σ> and <Ζ> were, then, suitable for variations with <Θ>, <Δ>, if the latter two had come to correspond to dental fricatives, and we should expect rather frequent neutralizations between the two groups.

As soon as both changes in question had been accomplished, we might expect neutralization also between <Θ> and <Δ> as corresponding to similar sounds.

¹⁷⁸ The statements made by Grammont, *Phonétique*, p. 33, that "β est devenu v bilabial vers le III^e s. av. J.-C." and that [p^h] changed into a labiodental fricative [f] "vers le IV^e s. av. J.-C." are thus refuted.

¹⁷⁹ In Var. 123 the frequent instances of the type described by Mhs, pp. 102 f. are not included, since they are most probably due to assimilation or metathesis. In some cases the forms with <Θ> predominate markedly, e.g. Θεμισθοκλῆς; cf. *Hesp.* 7,228—243. The vase-painter Cachrylion almost exclusively writes his name Χαχρυλίον.

¹⁸⁰ In this neutralization the fairly frequent instances that are most probably due to assimilation are not included; cf. Schwyz., *GG* I 257, Mhs, p. 79, and Kr., p. 145.

Neutralizations between $\langle \Theta \rangle$ or $\langle \Delta \rangle$ and zero $\langle \emptyset \rangle$ are not very probable, because of the rather good possibilities of Neutralization just mentioned.¹⁸¹

We observe that Neutralizations 34d—34g are of that kind,¹⁸² comprising together 14 instances, among which 2 are context-sensitive.

On the other hand there are Neutralizations 34a—34c, containing 26 instances, 2 of which are context-sensitive.

The context-sensitive $\langle \Theta \rangle$ for $\langle T \rangle$ should also be considered (note 179). These neutralizations constitute evidence for a stop quality of the phonemes corresponding to $\langle \Theta \rangle$ and $\langle \Delta \rangle$.

It may be observed that Vars. 124—125 contain 6 instances of $\langle T \rangle$ (or $\langle T\Theta \rangle$) for $\langle \Theta \rangle$ / $[s]$ -. This is a rather low frequency, but the total number of instances of these variants is only 19. One of the six instances is fully valid, one is marked with two, and the rest with one non-phonetic factor.

The change to be expected as a cause of origin of these instances is $[t^h] > [t]$ / $[s]$ -. (MG [st]).

Neutralization 34h, $\langle T \rangle \sim \langle \Sigma \rangle$,¹⁸³ is difficult to evaluate. It cannot be interpreted either for or against the phonetic changes here concerned. To interpret it as a sort of inverse spelling is not possible, because the neutralization is represented in both directions,

¹⁸¹ In early documents, especially vase inscriptions from the 6th century, one often finds $\langle \emptyset \rangle$, $\langle \Theta \rangle$, $\langle \emptyset \rangle$, $\langle \emptyset \rangle$ written for each other mutually. This phenomenon has been interpreted by Arena, *Glotta* 44 (1966/67) 14—19 as an indication of fricative quality in the corresponding sounds. He posits (p. 17) that there was a need to distinguish the two new phonemes /f/ and /θ/ by special graphic representations, a supposition without justification (cf. above, pp. 166—168).

The natural explanation is that the graphemes $\langle \Phi \rangle$ and $\langle \Theta \rangle$ each had a number of allographs; $\langle \Phi \rangle$ had the allographs $\langle \Phi \rangle$, $\langle \Theta \rangle$ Hopp., *Rf.* II 208,8, $\langle \Theta \rangle$ Hopp., *Rf.* I 45,1, $\langle \Theta \rangle$ *passim*, $\langle \emptyset \rangle$ ARV 125,20, $\langle \Theta \rangle$ ARV 129,24, $\langle \Theta \rangle$ ARV 129,27, $\langle \emptyset \rangle$ ARV 129,21 *et passim*, and others; while $\langle \Theta \rangle$ had the allographs $\langle \Theta \rangle$, $\langle \Theta \rangle$, $\langle \emptyset \rangle$, $\langle \emptyset \rangle$, $\langle \Phi \rangle$ ARV 83,14, $\langle \emptyset \rangle$ *passim*, and others.

Being free allographic variations, these of course fall outside the present study (cf. above, pp. 57 f.).

¹⁸² Neutralizations between $\langle \Delta \rangle$ and $\langle Z \rangle$ (and $\langle \Sigma \rangle$) are found below, Variations 157—160, represented by 4 hapax occurrences. Cf. also Mhs, pp. 88,9.

¹⁸³ A neutralization $\langle T \rangle \sim \langle Z \rangle$ is found below, Variations 155—156, with 6 instances in total.

one of which thus constitutes itself an inverse spelling as against the other. We are compelled, then, to consider this neutralization as a separate group, which, owing to its low frequency, is without significance.

Only Neutralization 34a is so frequent as to possess decisive evidence of its own.

Conclusion 1

The very scarce evidence for the expected phonetic changes $[t^h] > [\theta]$ and $[d] > [\delta]$, and the strong and significant contrary evidence, especially of Neutralization 34a, clearly indicate that the changes in question had not taken place during the period comprised by the investigation.

Conclusion 2

The 6 instances of Vars. 124—125 / $[s]$ -. vaguely indicate a change $[t^h] > [t]$ / $[s]$ -.

35a $\langle K \rangle \sim \langle X \rangle$ (Variations 135—137)¹⁸⁴

35b $\langle K \rangle \sim \langle XK \rangle$ (Variation 138)

35c¹⁸⁵ $\langle K \rangle \sim \langle \Gamma(K) \rangle$ (Variations 139—141)

35d $\langle \Gamma \rangle \sim \langle X \rangle$ (Variations 142—143)

35e $\langle X \rangle \sim \langle \emptyset \rangle$ (Variation 144)

35f $\langle \Gamma \rangle \sim \langle \emptyset \rangle$ (Variations 145—146)

35g $\langle \Gamma \rangle \sim \langle \alpha \rangle$ (Variations 147—148)

35h $\langle \Gamma \rangle \sim \langle \Sigma \rangle$ (Variation 149)

35i $\langle X \rangle \sim \langle \Theta \rangle$ (Variation 150)

The phonetic changes to be expected here are the rephonologizations $[k^h] > [x]$ and $[g] > [ɣ]$.

These changes imply that there originated velar fricatives not previously existing in Attic. The two original Attic fricatives /s/ and /h/ are dental and laryngeal¹⁸⁶ respectively. Consequently,

¹⁸⁴ In Variation 135 context-sensitive instances of the types described by Mhs, pp. 102 f. (cf. above, p. 220, n. 176 and p. 221, n. 179) are not included.

¹⁸⁵ In this neutralization the fairly frequent instances that are most probably due to assimilation are not included; cf. Schwyz., *GG* I 257 and Mhs, pp. 74 f.

¹⁸⁶ Brandenstein, *Kratylos* 10 (1965) 184 maintains that Attic [h], which had

there are no graphemes or graphemic sequences directly suitable for neutralization. We may expect the changes in question to cause only infrequent graphemic neutralizations between <X>, <Γ> on the one hand, and <Σ>, <Z>, OA <H>¹⁸⁷ <Θ>, and perhaps <α> on the other.

If the changes were simultaneous, we should expect neutralization also between <X> and <Γ> themselves.

Neutralizations 35d—35i, comprising 33 instances in all are of this kind.

If we first consider the variations between <X> and other graphemes except <K>, i.e. Neutralizations 35d,¹⁸⁸ 35e, and 35i, we find that there are 5 instances in all in this group, while the variations between <Γ> and other graphemes except <X> and <K>, i.e. Neutralizations 35f—35h, comprise together 28 instances.¹⁸⁹ In the latter group 8 instances are dated before 400.

This group is not represented /<σ>—<σ>, and only twice /#—<σ>. All other instances are found in (totally or partially) autographemic environments.

It may be observed that there is no neutralization between OA <H> and <X>, <Γ>, nor between <Z> and these graphemes.

Strong contrary evidence is provided by Neutralizations 35a—35c, comprising 46 instances, among which 7 are context-sensitive. Vars. 137 and 140—141 are restricted to certain environments.¹⁹⁰ Var. 141 may be interpreted as a sort of inverse spelling as against the variant <Γ> before , <Δ>, <Γ>, <Λ>, <M>, and <N> (all these graphemes correspond to voiced consonants). Cf. Mhs, pp. 106—108.

arisen from [s] or [j], was palatal: "h entsteht durch Anhauchen gewisser Stellen der vorderen Mundschleimhäute. Nur bei dieser Natur des h kann man z.B. den Wandel von s > h im Urgriechischen verstehen: s ist ein dentaler Anblaselaut; wenn sich die Anblasestelle etwas nach hinten verlagert und der Mund stärker geöffnet wird ... entsteht ein h".

¹⁸⁷ I.e. as corresponding to /h/.
¹⁸⁸ The instance 135,10 ἐχ Λέσβου might also be interpreted as an instance of Var. 142, because the form ἐχ is common before voiced consonants (Mhs, pp. 106—109).

¹⁸⁹ In Var. 146,6, 8, and 11 <Γ> may perhaps correspond to "agma" [ŋ]; cf. Schwyz., GG I 214 f. and Allen, *Vox Graeca*, pp. 33—37.
¹⁹⁰ Only these variants are included in the data, others being too frequent; cf. Mhs, pp. 106—109.

Vars. 135—139, comprising 33 instances in all, constitute the most conclusive evidence. It may be observed that only 11 instances of this group are dated after 400.

Conclusion 1

The strong contrary evidence of Neutralizations 35a—35c clearly indicates that the phoneme corresponding to the grapheme <X> had a stop quality.

Conclusion 2

The phoneme /k/ did not occur /—[voiced consonant].

Conclusion 3

The development of [g] towards a fricative quality seems to have begun already before the 4th century, perhaps starting in vocalic environments.

The almost total lack of evidence for a change [k^h] > [x] evidently indicates that [k^h] remained during the whole of the period investigated, i.e. down to 200 B.C.

36a <Z> ~ <Σ> (Variations 151—152)

36b <Z> ~ <ΣZ> (Variation 153)

36c <Σ> ~ <ΣZ> (Variation 154)

36d <Z> ~ <Τ> (Variations 155—156)

36e <Z> ~ <Δ> (Variations 157—158)

36f <Z> ~ <ZΔ> (Variation 159)

36g <Δ> ~ <ΣΔ> (Variation 160)

In MG the grapheme <Z> corresponds to a phoneme /z/. In OA this grapheme corresponded to two phonemes: /s/ and /d/ in a sequence /sd/ or /ds/.¹⁹¹ Originally there did not exist a phoneme /z/ in Attic. Consequently, the change that gave rise to the MG phoneme was of

¹⁹¹ Evidence of a sequence /sd/ is found in the parallel development σύν-ζυγος > σύζυγος and συν-στέλλω > συστέλλω. If there once existed a sequence /ds/ this must have undergone metathesis before this assimilation could take place.

the type phonologization and thus had a comparably strong transpositional force.

The only grapheme suitable for neutralization was <Σ>, since this alone corresponded to a dental (or alveolar) fricative—provided that [t^h] and [d] had not yet changed to fricatives so that <Θ> and <Δ> had also become possible. But, as stated above (p. 223), this was not the case.

Now it should be observed that OA <Z> corresponded to a phonetic sequence [zd] (or maybe [dz]), i.e. partly to an allophone [z] of the phoneme /s/, partly to an allophone [d] of the phoneme /d/. This partial correspondence to a sound [z] already before the change [zd] > [z(:)] means that the transpositional force of the change was reduced, because <Z> retained part of its traditional reference.

On the other hand the grapheme <Σ> is supposed¹⁹² to correspond to an allophone [z] of the phoneme /s/ /-[voiced C] already before the change [zd] > [z(:)]. This double correspondence of <Σ> means that we should expect neutralization with <Z> preferably in the positions where <Σ> corresponded to the allophone [z], and also that the probability of neutralization in these positions was considerable even before the change [zd] > [z(:)]¹⁹³ and became high after that change had taken place.

To sum up, it can be maintained that the probability of graphemic neutralization as a result of the change under discussion was fairly high, although only <Z> and <Σ> were available for this.

Evidence of the change is provided by Neutralizations 36a—36c, which comprise 23 instances in all. Their evidential value is high, because 14 instances are fully valid.

In this group there are 14 instances /-[V]_-[V], 3 /#_-[V], 2 /-[voiceless C] and only 4 /-[voiced C]. This distribution is surprising, considering the theory mentioned above that Attic /s/ had an allophone [z] /-[voiced C]. If that were the case we should expect rather the opposite distribution: the neutralizations between <Σ> and <Z> would have begun in this position and always been most frequent there.

It may be observed that the earliest instance of neutralization /-[voiced C] is dated ca. 350, while there are 4 earlier instances in

other positions. It is notable that only 3 instances of the group Neutralizations 36a—36c are earlier than 400, and that only 5 are later than 300.

Contrary evidence against the change [zd] > [z(:)] is provided by Neutralizations 36d—36g, comprising together 10 instances, six of which are dated before 400.

Conclusion 1

The evidence of Neutralizations 36a—36c points to a general¹⁹⁴ phonetic change [zd] > [z(:)] during the 4th century. The development may have begun in the 5th century. Perhaps it was first accomplished in intervocalic position.

Conclusion 2

There is only the insignificant evidence of the four instances 152,4, 6, 8 and 154,1 to support the opinion that the allophone [z] of the phoneme /s/ was general /-[voiced C]. However, there is good reason to expect Neutralizations 36a—36c to be frequently represented in this position, after the allophone [d] of the phoneme /d/ had been assimilated with that allophone and after the resulting new phoneme /z/ had thus incorporated this allophone, so that <Σ> /-[voiced C] had become a correspondence to /z/ instead of /s/.

It might seem probable, then, that it was not until the new phoneme /z/ had arisen /-[V]_-[V] that [s] /-[voiced C] changed into [z] and was incorporated into the phoneme /z/. Seeing, however, that [z] is attested almost immediately (152,4 ca. 350), there is reason to suppose that there did exist a voiced allophone [z] of the phoneme /s/ in this position even earlier.¹⁹⁵

¹⁹⁴ If separated by a syllable boundary /s/ and /d/ were not assimilated, because /s/ was represented by [s] (not [z]) in that position. Lupaş, *Phonologie*, p. 27 is in doubt whether <ΣΔ> in τῆσδε etc. corresponded to [sd] or [zd]. But the different orthography <ΣΔ> in such words indicates that the pronunciation was not [zd] but probably [s-d]. If <Z> and <ΣΔ> had corresponded to one and the same phonetic entity this would certainly have produced orthographic variation between these graphemes in the morphemes concerned. But there is no example of this.

In (the very frequent) Ἀθήναζε, however, the consistent spelling <Z> shows that the syllable boundary had probably been transferred: [a-zde].

¹⁹⁵ This case clearly illustrates the theory discussed above, pp. 168 f.

¹⁹² Cf. Schwyz., *GG* I 217 f., Lejeune, *Traité*, p. 100, Allen, *Vox Graeca*, pp. 43 f.

¹⁹³ Allen's opposite opinion (*Vox Graeca*, p. 44) is, then, not correct.

- 37a <Ξ> (<XΣ>) ~ <Σ(Σ)> (Variations 161—162)
 37b <Ξ> ~ <Z> (Variation 163)
 37c <XΣ> ~ <X> (Variation 164)
 37d <XΣ> ~ <XΣX> (Variation 165)
 37e <ΣX> ~ <XΣ> (Variation 166)
 37f <Ξ> (<XΣ>) ~ <K> (Variation 167)
 37g <XΣ> ~ <KΣ> (Variation 168)
 37h <XΣ> ~ <ΣK> (Variation 169)
 37i <Ψ> (<ΦΣ>) ~ <Σ> (Variations 170—171)
 37j <ΦΣ> ~ <ΠΣ> (Variation 172)

The OA graphemic sequences <XΣ> and <ΦΣ> are generally supposed to have corresponded to [k^hs] and [p^hs] (or possibly [xs] and [fs])¹⁹⁶ respectively.

As evidence in favour of a biphonemic status of the phonetic counterpart is adduced *inter alia* the frequent metatheses <ΣX> and <ΣΦ>.¹⁹⁷

These metatheses have not been included here because of their high frequency in the 6th century. It is notable that they gradually become less frequent during the 5th century.

The omission of either of the graphemes of the sequences (Vars. 161, 164 and 170) should be interpreted as an indication that the corresponding sounds had a tendency to coalesce, or that either was about to disappear, or even that one of the sounds was changing its phonetic character.¹⁹⁸

Vars. 162—163 and 171 may represent inverse spellings.

Neutralizations 37g—37h and 37j can be considered as a group, inasmuch as it comprises variations with <K> and <Π> respectively. This group constitutes evidence for a quality [ks], [ps] of the corresponding phonetic sequence.

It may safely be maintained that <XΣ>, <ΦΣ> did not originally correspond to /ks/, /ps/, as was the case later (so MG). If this had been so, the graphemes <K> and <Π> would have been used instead of <X> and <Φ>.

¹⁹⁶ Cf. Schwyz., GG I 211,6 and Brandenstein, *Acta Ling.* 6 (1950/51) 35.

¹⁹⁷ Cf. Schwyz., GG I 211, Mhs., p. 93,5 and 10, Kr., pp. 180 f. Brandenstein, *Acta Ling.* 6 (1950/51) 35 f.

¹⁹⁸ Cf. above, Neutralizations 7, 9, 13, 15, 20, 22, and 29.

The OA form ξόν is known to have changed into σύν during the 5th century. Cf. Mhs., pp. 220 f.

Conclusion

The evidence of Vars. 161 and 164 vaguely indicates a tendency of assimilation into [s(s)] in the phonemic sequence originally corresponding to <XΣ>. The evidence in support of a similar change in the sequence corresponding to <ΦΣ> is negligible (Vars. 170—171). The graphic material offers no clues as to the original phonetic character of these sequences.

The infrequent Neutralizations 37g—37h and 37j provide no evidence to show a change in the first element of the two phonetic sequences into [k] and [p] respectively.

- 38 <N> ~ <K> (Variation 173)

- 39 <Σ> ~ <Λ> (Variation 174)

The four sporadic instances of these neutralizations are evidently due to assimilation (cf. below, p. 242).

- 40 <P> ~ <I>/<E> (Variation 175)

The grapheme <P> is often represented by an allograph <I> (written on the left in the column). It is not possible to identify the I-graphs as members of the grapheme <P> or the grapheme <I>, if the inscription has been published without a photograph or facsimile, which is very often the case. Consequently a full account of this neutralization was impossible. The few instances—although three of them are fully valid—do not constitute any significant evidence.

- 41 <H> ~ <Ø> (Variations 176—177)

This neutralization is studied only in one direction, namely the inverse spelling <H> in the place of <Ø>. This is because of the high frequency of the variant <Ø> for <H> /#_ during the second half

of the 5th century.¹⁹⁹ In Var. 176 the numerous instances occurring in *IG I²* 374 are not included, because <H> instead of <Θ> is the orthographic norm in this document.

A great number of morphemes occur in alternative forms with or without initial <H>,²⁰⁰ and are thus excluded from the data.

The earliest instances of <Θ> for <H> date from the period about 500, e.g. *Ἐκτ(ρ)ωρ ABV Paralip.* 164,31 bis (end 6th c.) and *Ἐγέστ(ρ)ατος Hesp. Suppl.* 8,398,10b (begin. 5th c.).²⁰¹

The latter inscription was written entirely in the OA alphabet. Since the Ionic alphabet was occasionally used already about 500, even these early instances of omission of <H> may be due to its influence. During the second half of the 5th century this is certainly the case to a great degree. However, the profound orthographic disorder during that period is striking, and so is the abrupt disuse of <H> as corresponding to /h/ from 403 on.²⁰² These circumstances, together with the not insignificant inverse spelling of Var. 177 (9 fully valid instances, all after 433/2), and further the instances Var. 115,9, Var. 124,6—7, 9—11, 13, Var. 123,3 (inverse spelling), and Var. 136,9 may be said to indicate a change in the phonetic character of [h] $\left\{ \begin{smallmatrix} \# \\ /-/- \end{smallmatrix} \right\}$.

On the other hand we find the following evidence for the existence of a phoneme /h/ during the entire period investigated:

The existence of a sound [h] $\left\{ \begin{smallmatrix} \# \\ /-/- \end{smallmatrix} \right\}$ down to 403 is evident from the inverse spelling of Var. 176,14 and 16—31 (all instances are fully valid).²⁰³

The assimilations and metatheses of aspiration are very frequent during the 6th—4th centuries. In these processes the aspirated stops and the sound [h] $\left\{ \begin{smallmatrix} \# \\ /-/- \end{smallmatrix} \right\}$ [V] behave in a totally similar way.²⁰⁴

It was concluded above, pp. 221, 223, and 225 that /p^h, t^h, k^h/

¹⁹⁹ Cf. Mhs, p. 85.

²⁰⁰ Cf. Mhs, pp. 86 f.

²⁰¹ Cf. Thumb, *Spir. asper*, pp. 60—63 and Mhs, p. 85, n. 724.

²⁰² The occasional instances cited by Mhs, p. 6,6 are almost exclusively found in conventional formulas such as *HOPOS* etc. and, consequently, cannot be looked upon as evidence of the existence of a phoneme /h/ after 403.

²⁰³ The instances Var. 176,6—12 and 15 indicate an aspirated character of /l/, /m/ and perhaps /r/ in the 6th century.

²⁰⁴ Cf. Mhs, pp. 102—104. The change [dh] > [th] in *οὐθείς, μηθείς* during the 4th century is important. The earliest instance that may indicate this change is dated in the 6th c. (Mhs, pp. 104,2).

remained aspirated stops at least down to ca. 200 B.C. This conclusion is further supported by these assimilations and metatheses of aspiration that are frequent also in the 4th century. Consequently, since the preservation of /p^h, t^h, k^h/ can be considered proved, the consistent unchanged orthography <Φ, Θ, Χ> $\left\{ \begin{smallmatrix} \# \\ /-/- \end{smallmatrix} \right\}$ [h] during the whole period investigated constitutes conclusive evidence of a sound [h] in these positions, e.g. *ἐφ' ὁδοῦ, καθ' ὅλου*. As is seen in MG /p^h, t^h, k^h/ changed into fricatives in these positions as well as elsewhere. This implies that this change must have been previous to, or possibly simultaneous with, the disappearance of /h/, since this sound is the prerequisite of /p^h, t^h, k^h/ in these positions.²⁰⁵

Conclusion

The evidence in support of a phonetic change implying the disappearance of the phoneme /h/ is clearly inferior to the positive evidence showing its existence during the whole period investigated.

The orthographic disorder during the second half of the 5th century was probably mainly due to alphabetic causes but may also be interpreted as indicating that a change in the phonetic quality of [h] was taking place. It cannot be concluded from the graphic material what the character of this change was and how widespread it was.

42 <σσ> ~ <σ> (Variations 178—179)

The doubling of syngraphemes when corresponding to /C:/ was gradually established as an orthographic norm during a period of about 100 years, namely ca. 550—450. This is why Var. 178 may not be studied before 425. The reason for excluding even the period 450—425 is to eliminate all remainders of the old orthography <σ>.

²⁰⁵ If /h/ had disappeared (dephonologization), before /p^h, t^h, k^h/ became fricatives, this would have produced quite frequent orthographic variants such as *ἐπ' ὁδοῦ, κατ' ὅλου* etc., and MG would not have fricatives in these positions.

There are forms such as *Γλαύκιππος IG I²* 108,6, 110,5 etc, *Νίκιππος IG I²* 949,75, *ἀπηλυστήρ* (derived from *ἥλιος*) *Aristoph. Av.* 110, and others. Cf. Schwyz., *GG I* 218, n. 2.

Table 1

Markings with non-phonetic factors	
Number of markings	Instances
3	16
2	49
1	150
Fully valid	85
Total	300

Table 3

Number of instances of <σσ>		Number of instances of <σ>	
/-[p]	2	/-[l]	3
/-[t]	55	/-[r]	1
/-[k]	11	/-# [sp] ²⁰⁶	1
/-[b]	2	/-# [st]	13
/-[t ^h]	12	/-# [sk]	2
/-[k ^h]	2	/-# [sp ^h]	4
/-[l]	1	/-# [sV]	2
/-[m]	5	/-# [mV]	3
/-[n]	12	/-[V]	84
/-[s]	1		
/-# [p]	4		
/-# [t]	10		
/-# [k]	1		
/-# [d]	1		
/-# [l]	1		
/-# [m]	1		
/-# [n]	1		
/-# [s]	1		
/-#	1		
/-[V]	5		
Total	187	Total	113

²⁰⁶ Of course it cannot be stated which of the two syngraphemes has been omitted; if the latter has been omitted, its position and the environment should of course be described in this way: /-[s]#-[p], /-[s]#-[t], etc.

Table 2

Environments	
Preceding tentative phonemes	Following tentative phonemes
/i, e(:), ε:, a(:), ɔ:, o, u(:), y(:), t, k, p ^h , l, r/ and #	/i, e(:), ε:, a(:), ɔ:, o, u:, y, p, t, k, b, t ^h , k ^h , m, n, l, s/ and #

In compounds with second element beginning with the phoneme /r/ the relative frequencies of <PP> and <P> respectively are in the ratio 103 : 91 during the period 450—300.²⁰⁷ In word-initial position the orthographic norm is <P>.²⁰⁸

Table 4

Number of instances of			
<III>	7	<Π>	15
<TT>	3	<Τ>	36
<KK>	9	<Κ>	3
<ΓΓ>	2	<Γ>	1
<XX>	2		
<ZZ>	20	<Λ>	18
<ΛΛ>	12	<Ρ>	3
<PP>	12	<Μ>	9
<MM>	7		
<NN>	111	<Σ>	28
<ΣΣ>	187	Total	113
Total			

Table 5

Period	Instances
—425	75
425—400	31
400—350	38
350—300 ²⁰⁹	81
300—250 ²¹⁰	58
250—200	17
Total	300

²⁰⁷ Period	Instances of	
	<PP>	<P>
450—350	42	46
350—300	49	57
Total	91	103

Schwyz., *GG* I 414 maintains that <P> (and other syngraphemes) were doubled in composition joints. (However, this statement is perhaps meant to be a generalization.)

²⁰⁸ Cf. Schwyz., *GG* I 310.

²⁰⁹ Instances dated "ca. 350" are counted here.

²¹⁰ Instances dated "4th/3rd c." are counted here.

The total evidential value of Neutralization 42 is high. Since marking with factor (2) is general in Var. 178, its significance is suspended there.

Neutralization 42 has a very widespread distribution (tables 2—3). It is natural that the neutralization predominates markedly /- [V], because of the high frequency of syngraphemes in that position. The high frequency of neutralization /- [t] and /- # [st] is notable.

All syngraphemes that occur doubled (cf. above, p. 44) take part in the neutralization in both directions (only <N> is not represented in Variation 178) (table 4). The marked preponderance of neutralization <Σ> ~ <ΣΣ> is remarkable, and also <T> ~ <TT> and <Λ> ~ <ΛΛ> are predominant.

The chronological distribution is not characterized by a culmination as was the case with the neutralizations relevant to the problem of vowel length (cf. table above, p. 219). However, there is a clear increase in frequency about 350 (table 5).²¹¹ A certain number of instances of Var. 179 dating from the period of establishing the new orthographic norm <σσ> corresponding to /C:/ may be due to the orthographic oscillation during that period. However, there is no rule, according to which marking with some factor can be done.

It can be seen that Var. 179 contains 112 instances dated 425 or later, while Var. 178 (not comprising the time before that date) contains 113 instances.

The phonetic change to be expected is [C:] > [C] (dephonologization). Since the possibility of a graphemic neutralization <σ> ~ <σσ> is very good, we should expect this to be very frequent.

The marked predominance of <σσ> for <σ> /- [voiceless C], especially /- [t] has been interpreted as due to an undecided location of syllable boundary.²¹² However, in a great number of instances of Var. 179 this explanation is impossible, e.g. /- [V] (59 instances), and this is of course also the case with the still greater group (84 instances) of Var. 178 in this position. The neutralization <ΣΣ> ~ <Σ> /- [voiceless C] should not be treated apart, but should be looked upon as part of Neutralization 42 as a whole.

²¹¹ Thus Mhs, p. 95 f. is not right in stating that there was an increase in frequency from the 3rd c. on (cf. also Schwyz., *GG* I 230).

²¹² The explanation holds good in many cases; cf. Schwyz., *GG* I 235—238. However, this has been erroneously used also for <KK> /- [p] by Mhs, p. 106, 2. No Greek syllable can begin with [kp]. Cf. also Buck, *Greek Dialects*, p. 75, 89.

Conclusion

The high frequency of Neutralization 42 and the equal frequency of variation in both directions clearly indicate that consonant length tended to be equalized from the 5th century and was probably almost equal about the middle of the 4th century. It cannot be stated in what environment the change began.

The fact that all syngraphemes that occur doubled are represented in the neutralizations clearly indicates that the equalization of consonant length was general.

43 <σ> ~ <Θ> (Variation 180)

Table 1

Omitted syngrapheme in position	Instances	Number of instances in period			
		—500	500—400	400—300	300—200
<Π> /- [V]	1			1	
<Τ> /- [t ^h]	1			1	
<Τ> /- [l]	1			1	
<Τ> /- [r]	14	5		7	2
<Τ> /- [V]	5		1	4	
<Κ> /- [k ^h]	1			1	
<Κ> /- [l]	1		1	1	
<Κ> /- [n]	1			3	
<Κ> /- [V]	3		1		
<Κ> /- #	1		1		
<Γ> /- [k ^h]	1		1		
<Λ> /- [t]	1		1		
<Λ> /- [V]	14	2	2	6	4
<Ρ> /- [g]	1				1
<Ρ> /- [m]	1		1		
<Ρ> /- [n]	1		1		
<Ρ> /- [s]	1			1	
<Ρ> /- [V]	28	9	6	5	8
<Ρ> /- #	1			1	
<Μ> /- [p]	6	3	3		
<Μ> /- [b]	2			2	
<Μ> /- [p ^h]	9	3	4	1	1
<Μ> /- [V]	3	2		1	

Omitted syngrapheme in position	Instances	Number of instances in period			
		-500	500-400	400-300	300-200
<N> /-[t]	23	4	7		
<N> /-[d]	14	8	4	11	
<N> /-[g]	1		1	1	1
<N> /-[p ^h]	1	1			1
<N> /-[t ^h]	3		2		
<N> /-[k ^h]	4	4			
<N> /-[s]	1				1
<N> /-[V]	11	3	1	1	
<N> /-#	66	4	18	5	2
<Σ> /-[t]	6	1	3	1	8
<Σ> /-[k]	1		1		1
<Σ> /-[t ^h]	2				
<Σ> /-[k ^h]	1			1	
<Σ> /-[n]	1			1	
<Σ> /-[V]	1	1		1	
<Σ> /-#	63	20	19	19	5
Total	297	70	79	113	35

Table 2

Omitted syngrapheme in position	Instances	Number of instances in period			
		-500	500-400	400-300	300-200
<Π> /[e]-	1				
<T> /[i]-	1			1	
<T> /[u]-	1			1	
<T> /[p]-	5			1	
<T> /[k]-	1			3	2
<T> /[n]-	1			1	
<T> /[s]-	11	5	1		
<T> /-#	1			6	
<K> /[i:]-	1			1	
<K> /[e]-	1			1	
<K> /[a]-	1			1	
<K> /[y]-	2		1		
<K> /[n]-	1		1	1	
<K> /-#	1			1	

Cont. table 2

Omitted syngrapheme in position	Instances	Number of instances in period			
		-500	500-400	400-300	300-200
<Γ> /[e]-	1		1		
<Λ> /[i]-	5		1	2	2
<Λ> /[e]-	2	1		1	
<Λ> /[a]-	2			1	
<Λ> /[p]-	1	1	1	1	2
<Λ> /[k]-	5				
<P> /[i]-	1		1		
<P> /[e]-	4		1	1	2
<P> /[a]-	5		2	3	
<P> /[p]-	1				1
<P> /[t]-	10		2	4	4
<P> /[k]-	5	4	1		
<P> /[g]-	3	3			
<P> /[t ^h]-	1		1		
<P> /[k ^h]-	3	2		1	
<M> /[i:]-	1	1			
<M> /[a]-	7	1	5		1
<M> /[y]-	10	5	3	2	
<M> /[t ^h]-	1			1	
<M> /[r]-	1	1			
<N> /[i]-	11	6	3	1	1
<N> /[e]-	24	1	9	13	1
<N> /[ε:]-	32	7	9	12	4
<N> /[a]-	13	3	7		3
<N> /[a:]-	4			4	
<N> /[y]-	3		2	1	
<N> /[y:]-	1		1		
<N> /[o]-	13	3	3	6	1
<N> /[o:]-	5	2	1	1	1
<N> /[u]-	2			2	
<N> /[u:]-	10		1	9	
<N> /[g]-	1				1
<N> /[m]-	6	3		2	1
<Σ> /[i]-	18	2	8	8	
<Σ> /[ε:]-	8	2	2	2	2
<Σ> /[a]-	4		1	3	
<Σ> /[a:]-	12	7	3	1	1
<Σ> /[o]-	20	4	9	4	3
<Σ> /[o:]-	1	1			

Cont. table 2

Omitted syngrapheme Instances in position		Number of instances in period			
		-500	500-400	400-300	300-200
<Σ> / [u]_-	5		4		
<Σ> / [u:]_-	5			1	
<Σ> / #_-	1		1	4	
Total	297	69	83	111	34

Neutralization 43 is significant only in the following cases and positions, i.e. where its frequency is sufficiently high.

Omission of

1. <T> /_-[r] and / [s]_-
2. <Λ> and <P> /_-[V], and <P> / [t]_-
3. <M> / [y]_-

4. <N> /_- $\left\{ \begin{array}{l} [t] \\ [d] \end{array} \right\}$, /_-[V], /_-#, and / $\left\{ \begin{array}{l} [i] \\ [e] \\ [\epsilon:] \\ [a] \\ [o] \\ [u:] \end{array} \right\}$ _-

5. <Σ> /_-# and / $\left\{ \begin{array}{l} [i] \\ [a:] \\ [o] \end{array} \right\}$ _-

In some of these cases the frequency is rather low and consequently the significance must so far be considered somewhat doubtful. However, various other cases may sometimes be combined with those enumerated above to constitute a group. The graphemic conditions will be more closely examined below.

In all other cases the frequency is too low to allow any conclusions. Since <α> comprises all autographemes, the significance of omission of <N> before <α> is very doubtful, although the frequency may seem significant.

As was stated above, p. 217 about omission of <α> the evaluation of the evidence of this type of neutralization is difficult.²¹³

²¹³ Nevertheless, some scholars have been ready to accept rather few instances

Since marking with factor (2) is general, the significance of this factor is suspended.

Omission of graphemes need not necessarily mean that the corresponding sound has disappeared, but also that its quality has undergone some change.²¹⁴

If a sound was lost in some positions, i.e. if the frequency of a phoneme was reduced through partial dephonologization we should expect frequent graphemic neutralizations of the type <σ> ~ <Ø>. If the change implied a rephonologization only a few instances of neutralization may be expected.

Interpretations and conclusions

1. The omission of <T> / [s]_-[r] was first commented by Schulze²¹⁵ and Nachmanson.²¹⁶

There are 8 instances / [s]_-[r], 3 [p]_-[r] and 1 / [k]_-[r]. It is to be observed that there is no instance dated in the 5th century.

Perhaps these omissions might be interpreted as an indication of a fricative quality of [r]. This interpretation receives some support by the neutralization <P> ~ <I>/<E> (above, p. 143). The fricative [r] may have affected the foregoing [t] / [voiceless C]_-.

The conclusion should be looked upon as tentative and uncertain.

2. Omission of <P> and <Λ> was also discussed by Nachmanson, *l.c.*, pp. 4-14.

There are 10 instances / [t]_-[V], / [k]_-[V], / [p]_-[V], 3 / [k^h]_-[V], 1 / [t^h]_-[V], and 3 / [g]_-[V].

of omission as significant evidence; cf. above, pp. 217 f., notes 169 and 170; see also Schulze, *GGA* 158 (1896) 247 commenting, among other things, the writing σ<τ>ρατός: "... erkennen, dass es sich hier nicht um gleichgültige Schreibfehler und Flüchtigkeiten, sondern um beachtenswerte sprachliche Tatsachen handelt. Es lohnt die Mühe, an einem eklatanten Beispiel einmal zu zeigen, wie schwer sich die Beobachtung von unserer normalisierten Buchorthographie und der Neigung, alle Abweichungen als 'Fehler' zu 'korrigieren', losmachen und zu einer unbefangenen Anerkennung der feststehenden Tatsachen gelangen kann".

Such theories should of course be applied consistently to all types of orthographic variation, but this has not always been the case; cf. above, p. 164, n. 82.

²¹⁴ Cf., for example, above, pp. 194, 203, and 206.

²¹⁵ Cf. above, note 213.

²¹⁶ *Beiträge*, pp. 15 f.

It may be observed that all instances of omission of <P> / [stop]_ (Table 2, pp. 236 ff.) are found / [stop]_ [V].

This is also the case with <Λ>: all the 6 instances of omission / [stop]_ are found before vowel.

It is rather improbable, not to say impossible, that the omission of now <T>, now <P>, is a reflexion of a disappearance of the corresponding sounds respectively. It is rather improbable that e.g. στρατηγός was pronounced now [sratɛ:gós], now [statɛ:gós].

Consequently we have to comprehend in one group the omission of <T> / $\left\{ \begin{array}{l} [s] \\ [stop] \end{array} \right\}$ - [r] on the one hand and of <P> / [stop]_ [V] on the other and try the hypothesis that both types of graphemic neutralization reflect one and the same phonetic phenomenon.

Thus the omission of <P> / [stop]_ [V] provides further evidence for the conclusion drawn above: [r] probably had an (optional) fricative quality [ɾ] (alveolar fricative), which to a certain degree affected a preceding [t] (especially if this was in its turn preceded by a fricative, viz. [s]). The phonetic feature common to [t] as well as [r], namely alveolarity, was then the cause of both types of graphemic neutralization.

As regards [1] the graphemic evidence is too insignificant to allow any conclusions.

3. Omission of <M> / [y]_ is almost entirely confined to the position / [y]_ [p^(h)], where we find 9 instances. The remaining instance is found / [y]_ [b].

It should be noticed that the four instances are found in the morphemes {νυμφ} and {όλυμπ} respectively.

Six of the seven instances of <M> / [a]_ are found in the position / [a]_ [p^(h)]. The seventh occurs / [a]_ [b].

To conclude on the basis of this limited graphic evidence that there existed a general tendency to drop [m] / - [labial stop] may be somewhat rash. However, the development might be supposed to have been on its way; perhaps it manifested itself by a less nasalized pronunciation of [m] in this position (assimilation), which may even have caused occasional disappearance of the sound.

The much more frequent omission of <N>, which is dealt with below, is related and supports this conclusion.

4a. Among the 23 instances of omission of <N> / - [t] there are

s / [u:]_ [t], 3 / [o:]_ [t], 3 / [a:]_ [t], 2 / [e:]_ [t], and 2 / [i:]_ [t]. Seven of the 8 instances / [u:]_ [t] are found in οίκουντ-.

The 14 instances / - [d] are distributed in the following way: s / [ɛ:]_ [d] (all but one in τῆνδ'), 5 / [a:]_ [d], and 1 / [e:]_ [d].

The restriction of the neutralization to certain words detracts considerably from the evidential value. However it may perhaps be concluded that there was a tendency to assimilate [n] to a dental stop and then to drop it.

As was supposed about [m] / - [labial stop] the pronunciation of [n] in the position in question may also perhaps have been less nasal than elsewhere.

4b. Six of the 11 instances of omission of <N> / - [V] occur / [m]_ [V], which is too insignificant to allow any conclusion.

4c. In final position <N> is omitted 66 times, and this is particularly common during the 5th and the 4th centuries. There are 24 instances / [e:]_ #, 19 / [ɛ:]_ #, 6 / [o:]_ #, and 6 / [ɔ:]_ #. In the position / [a:]_ # there is only one instance.

There are only scattered instances in final position after other vowels.

Twenty-two instances of omission of final <N> after [e] or [ɛ:] are found before words beginning with [st] or [sk]: omission of <N> is especially frequent in the clause ἐν στήλῃ.²¹⁷

It may be concluded that the sound [n] was assimilated and dropped / $\left\{ \begin{array}{l} [e] \\ [ɛ:] \end{array} \right\}$ - # [s] $\left\{ \begin{array}{l} [t] \\ [k] \end{array} \right\}$, probably also / $\left\{ \begin{array}{l} [o] \\ [ɔ:] \end{array} \right\}$ - # [s] $\left\{ \begin{array}{l} [t] \\ [k] \end{array} \right\}$, in the same way as in compositions, e.g. συν-στέλλω > συστέλλω.²¹⁸ Although there is little graphemic evidence to support it, the rule may perhaps be generalized: [n] was assimilated / [V]_ # [s].

The grapheme <N> is comparably often omitted also before a following word beginning with a stop: there are 8 instances / [V]_ # [t^(h)], 6 / [V]_ # [k^(h)], 4 / [V]_ # [p^(h)], 3 / [V]_ # [g], and 1 / [V]_ # [b].

These types of omission are parallel with those treated above under 3 and 4a and may be evaluated in the same way: also final

²¹⁷ Cf. Mhs, p. 111, lf.

²¹⁸ This is true also when # [s] was not followed by [t] or [k]. Cf. Mhs, p. 110, lc.

[n] or [m] were probably more or less completely assimilated with a following stop independently of the word boundary.

The five instances of omission of <N> / [e]_# [l] are of course insignificant unless this group can be combined with other evidence. However, there are the writings τὸλ λόγον etc., which clearly indicate an assimilation.²¹⁹ The omission of <N> in the position in question may then be interpreted as evidence in support of the same phenomenon.

4d. The grapheme <Σ> is omitted in final position precisely as often as final <N>.

There are 12 instances of omission of <Σ> / [(a)i]_# (8 of which before initial stop in the following word), 7 / [ε:]_# (1 before stop), 2 / [a]_# (both before following stop), 18 / [a:]_# (4 of which before following stop), 6 / [u]_# (2 before stop), and 4 / [u:]_# (one before stop).

Although omission is most frequent /_# [stop], it is doubtful whether this preponderance may be considered significant, seeing that there are nine stops.

We may conclude that there was a tendency to drop [s] / [V]_# especially before an initial stop in the following word. Three of the six omissions of <Σ> /_# [t] are found /_# [tr], and there is one instance /_# [tʰr].

These few instances are not significant if treated apart, but taken together with the groups 1 and 2 discussed above, they may be: The omission of <Σ> /_# [tʰr] may be the result of an alveolar pronunciation of the following sound. It is also possible that even [s] was an alveolar sound, perhaps similar to MG [s].²²⁰

²¹⁹ Cf. Mhs, p. 111, 1d and above, Var. 174.

²²⁰ Nachmanson's (p. 20) opinion that the consonantal sequence [str] could be simplified in three ways by the pronunciations [st], [sr] and [tr] is not very plausible. As stated above (p. 240), the most probable interpretation of the omissions of different graphemes is often to conclude that there was a phonetic feature common to all the sounds involved.

Chapter 7

SECONDARY EVIDENCE

Preliminaries

DEFINITION

As secondary evidence is classed evidence other than that derived from graphic material of the period and dialect investigated.

The secondary evidence can be divided in two *sub-classes*:

A. Evidence of material from the period and dialect investigated, i.e. the Attic dialect down to ca. 200 B.C.

B. Evidence of material from other periods and dialects. The two sub-classes should be treated apart, because the evidence of the latter is only conditionally or not at all relevant to the Attic of the period investigated.

KINDS OF MATERIAL

The material can be divided into four categories:

1. Onomatopoeia, rhymes, allusions to pronunciation, (popular) etymologies etc.
2. Loan-words in both directions, viz. a) foreign words in Attic (Greek),²²¹ b) Attic (Greek)²²¹ words in other languages.
3. Orthophonic²²² statements or discussions by ancient grammarians and authors.
4. Secondary graphic evidence.

²²¹ Loan-words borrowed to or from Attic before ca. 200 B.C. belong to *Sub-class A*, while all others are classed under *Sub-class B*.

²²² This term is used in the present work instead of "orthoepistic", because it corresponds exactly to "orthographic", "orthography". Cf. above, p. 22, n. 14.

PRINCIPLES FOR TREATMENT OF MATERIAL

Delimitation

It is obvious that not all the material is equally relevant to the problem under discussion. Thus we have already discerned two sub-classes. These two classes differ fundamentally in regard to the number and kinds of undetermined non-phonetic factors that may be the causes of origin of the data. In *Sub-class B* there is a very large number of hardly definable factors that must be determined and investigated, before the material may be accepted at all. In practice, this might often be almost impossible.

For example, when dealing with a Greek loan-word in Latin, the following questions must be answered:

1. During what period was the word borrowed?
2. From what Greek dialect was it borrowed?

Only if it is known with certainty to have been borrowed during the period investigated, and only if it can be proved that it was borrowed from Attic does it belong to *Sub-class A*.

If these conditions are not fulfilled the point of time when it was borrowed must be determined as exactly as possible and it must be investigated from what dialect and in what region it was incorporated into Latin, before it can be evaluated.

And there are further questions:

3. Was it borrowed by literate or illiterate persons, i.e. was it assigned a definite orthography in the new language from the beginning or did it enter into literature only after having been used orally for some time?

4. Since our knowledge of the loan-word is based on graphemics only, the question arises whether the phonetic pattern of the Greek word was transposed into the Latin graphemic system or if the word was transcribed on graphemic basis, i.e. was the Greek word borrowed in its phonetic/phonemic or in its graphic/graphemic form? To put it otherwise: did the Romans borrow the phonemes of the Greek word and did they represent them by a phonetic transcription, or did they transliterate the word mechanically from the Greek alphabet into the Latin?

5. How exact is our knowledge about the Latin phonemic system?

If it can be shown that the Greek word was borrowed in its phonetic/phonemic form (phonetic/phonemic transcription), our

conclusions are totally dependent on our knowledge of Latin phonology and the grapheme-phoneme correspondences in Latin.

6. Do there exist any variations or changes in the Latin orthography of the loan-word? If so, these must first be examined and interpreted.

Similar factors are certainly also present in the other categories of secondary material, onomatopoeia etc., orthophonics and secondary graphic evidence. It is evident, then, that the thorough examination that must form the indispensable basis of evaluation of the secondary material requires extensive research.

As regards the material of *Sub-class B*, however, this can never be made directly relevant for periods and dialects outside the ones it belongs to. Only on certain conditions may it be accepted as evidential, but only in a limited sense.

The theory may be formulated in a principle called

Principle 4.

If no evidence can be extracted from material of the period and dialect investigated, i.e. from primary material or secondary of Sub-class A, then and only then may material of Sub-class B be accepted as indirectly relevant.

By the term "indirectly relevant" is meant that conclusions drawn from such material should be looked upon as tentative and comparably uncertain. For example, the orthophonic statements made by Dionysius of Halicarnassus, who lived in Rome in the early imperial period, have only a very limited, indirect relation to the Attic of the first half of the 4th century B.C.²²³

²²³ This fact has not—as far as I have been able to discover—been clearly observed so far.

It is generally agreed that the Koine was not a uniform language with an identical phonetic pattern in all the disparate regions where it was spoken, nor has anyone doubted that the phonetic development proceeded rather differently in different parts of the Greek-speaking world. In spite of this, conclusions are often drawn from material belonging to other areas and periods than the dialect investigated for the phonetics of this dialect. It appears that the cause is the very uniform writing of Koine: in principle the orthography was always the same in the whole language area.

It is evident that this literary Koine must have functioned as a super-

In principle, then, it is not possible to draw reliable and definite conclusions from the material of *Sub-class B* for Attic phonetics.²²⁴ However, when investigating the phonetic pattern of Attic, we need not make use of that material at all, because the primary graphic material and the secondary material of *Sub-class A* are vast and sufficiently all-round to make that of *Sub-class B* superfluous.

Consequently, we are not obliged to account for that material in this work. On the contrary, it would be a methodical deficiency to include it and to draw conclusions from it.²²⁵

It has already been established in the present work that the methods of Greek historical phonetics and phonology ought to be revised. Just as more stringent methods are needed for the treatment and evaluation of orthographic variations, for example in the way followed in the preceding chapters, so the secondary material should be treated in a systematic way.

Firstly, there is the elementary demand for a division of that material into two sub-classes as was just done above, and the elimination of *Sub-class B*.

Secondly, the different kinds of secondary material should be examined according to adequate methods. For example, when

national language, concealing under its erudite shape great differences in pronunciation, geographically, socially and chronologically, just as was the case with Late Latin, and as is seen today in languages spoken by peoples of different nations and areas, e.g. speakers of English, French, German, Russian, Arabic etc.

²²⁴ This may seem obvious, but nevertheless the traditional opinion has generally been quite the opposite: orthophonic statements by grammarians from the Hellenistic and imperial periods and late Greek loan-words in various—in some cases little known—languages have been looked upon as valid sources of knowledge about Attic pronunciation several hundreds of years earlier, while on the other hand there is the curious depreciation of the primary graphic material from the period and dialect in question by the same scholars. Cf. the discussion above, Chapter 5.

²²⁵ Such methodic deficiency has made it possible to draw totally divergent conclusions, depending on what hypothesis one has made a starting-point of argumentation. For example, it has been a current practice among scholars to draw definite conclusions about the pronunciation of classical Attic from data found in Egyptian papyri, on walls in Pompeii or in catacombs in Rome, dated 200—600 years later, without much discussion, if any, of the possible local influences and other unexamined factors.

treating loan-words, the phonetic pattern of the foreign language must first be thoroughly investigated. Depending upon the degree of exactness in our knowledge about that language, it is then decided how definite conclusions are to be drawn. This grading concerns each single phoneme, for it is of course possible that our knowledge of a certain language at a given point of time (preferably at the time when the word was borrowed) may be differently great in different parts of the phonetic pattern of that language.

There are many other problems of that kind to be observed when dealing with the heterogeneous secondary material.

For this material it is much more difficult to find tenable criteria of phonetic relevance than is the case with the primary material, where non-orthographic writings can be excluded (cf. above, pp. 50). For example, there is a multitude of cases that has been assumed, for instance by Papadémétracopoulos, to be examples of alliteration or allusions, although it can only be supposed that they were meant to be so and, as regards orthophony, there are many cases that are open to divergent interpretations. It is evident that such passages are of little interest, if any, because at best only very uncertain conclusions about phonetics can be drawn from them.

It is rather superfluous, then, to present a complete account of all existing material of that kind which would be comparable with the inclusion of even non-orthographic writings into the collection of orthographic data.

Consequently, it has seemed reasonable to concentrate on the material that can be considered with tolerable certainty to have some phonetic relevance, leaving out questionable cases, from which nothing substantial can be achieved anyway. In the treatment of the remaining material a selective method has been followed:

Most cases that provide comparably reliable evidence have been included. The cases sampled are intended to be representative of the whole material. Only the data found in Plato's *Cratylus* are dealt with more explicitly in order to provide a clearer picture of this abundant material.

A few instances that lack phonetic relevance to the dialect investigated are nevertheless discussed. This is because just those cases have always been looked upon as conclusive.

Finally, some examples of *Sub-class B* will be treated at the end of this chapter (pp. 271—281) for illustrative purposes.

The material presented in this chapter has not been collected

directly by extensive examination of ancient authors, as was the case with the primary material but has been taken from various works where they have already been discussed, in some cases for centuries. References to the extensive earlier literature in this field are given particularly by E. Drerup. For more recent works see below, Bibliography.

Phonetic Evaluation of Material of Sub-class A

1a. Onomatopoeia

The first case to be discussed is the often quoted onomatopoeic βῆ, βῆ imitating the sound of sheep, which is ascribed to Cratinus *Fr.* 43 Kock

ὁ δ' ἡλίθιος ὥσπερ πρόβατον βῆ βῆ λέγων βαδίζει.

The word is also found in Aristophanes *Fr.* 642 Kock

This word was always a basic argument of the old etacistic school²²⁶ and is considered "a particularly cogent proof" even later:²²⁷ <H> must have corresponded to an open front vowel [ε:].

However, we should put the question: What were the alternatives of that spelling for the representation of an open e-sound?²²⁸

The only possible alternative is <AI>,²²⁹ but then we must presuppose that this sequence already corresponded to a monophthong a long time before 400, and even in the upper classes, which is quite improbable.

But supposing that that was actually the case, we should not expect Aristophanes or any other author to launch such a radical orthographic innovation, especially not if that onomatopoeic word

²²⁶ In the nineteenth century the iotacists were challenged to present a sheep saying [vi:], [vi:]; then the etacists would be willing to accept the i-pronunciation. Cf. Kühner—Blass, p. 49.

²²⁷ Sturtevant, p. 34 and Allen, *Vox Graeca*, p. 67.

²²⁸ An answer to this question is a universal prerequisite of adequate judgments about spelling and spelling variations; cf. above, p. 168 *et passim* Chapter 6.

²²⁹ The OA spelling must have been BE, but this has no relevance to the problem.

had a long orthographic tradition (which we, however, do not know) in the form BE (Ionic BH).²³⁰

We find, then, that we must make two improbable suppositions, if we are to expect another spelling than BE (BH). Consequently, the case does not provide any evidence whatsoever about the contemporary phonetic quality of the sound corresponding to Ionic-Attic <H>.

There are many other examples of conservatism in the spelling of onomatopoeic words representing the sounds of animals.

For example, the cuckoo (κόκκυξ) is heard to call κόκκυ (κοκ-κύω)²³¹ (originally [kókku:]); the grunt of the pig was heard as γρῦ (γρῦζω) (originally [gru:]); and the cow was thought to μυκάσθαι or μύζειν²³² (orig. [mu:]); the bumble-bee is called βομβύλιος.

It is generally agreed²³³ that the change [u:] > [y:] took place ca. 400 at the latest. As has been shown above (pp. 199 f.) this change took place much earlier. Nevertheless the spelling with <Υ> is kept even in the 4th century and onwards. The basic [u:]-sounds of the animals in question were thus imitated by [y:]. Indeed, this development of Greek onomatopoeic words has advanced one step further since classical times: in Greece today the pig γρυλίζει [ɣri'lizi]. (However, new and really imitating words have also been created.)

Such conservatism of onomatopoeic words is found in many languages, especially those with a long history of writing, e.g. *Fr. mugir* (< Lat. *mugire*); cf. Swed. [mu:] (< [mu:]), further Eng. *bleat*, said about the sounds of sheep, calves and goats.

Consequently, written onomatopoeic words of that kind cannot provide any reliable evidence as to the phonetic quality of the underlying sounds during a period hundreds of years after the words in question were invented. The Attic words quoted above prove that the phonetic quality of the sound corresponding to <Υ> was

²³⁰ The form BAI is not found until in Eustathius and Suidas. Hesychius quotes BH.

²³¹ For example Aristoph. *Av.* 505 (of the cuckoo; Allen, *Vox Graeca*, p. 63, n. 2 is wrong), Plat. *Com. Fr.* 209 Kock, *Diph. Com. Fr.* 65 Kock (about the cock) etc.

²³² All these onomatopoeic words are fully alive in classical and Hellenistic times. Of course there are many others of similar types.

²³³ Cf., however, Lasso de la Vega, *Emerita* 24 (1956) 265 (cf. above, p. 212, n. 160).

[u:] in the period when the writing system was created, but one should beware of concluding that the conserved spelling with <Υ> in later periods reflects a retained original quality of the corresponding sound.

Since this principle can be considered general, we need not further concern ourselves with this kind of onomatopoetic words.²³⁴

1b. Rhymes

A difficult problem in the examination of this kind of material is to decide whether a certain passage is meant to be a rhyme or not. Consequently, this field has always been open to rather arbitrary interpretations. We will discuss here only some of the most reliable cases.

Most of the material is found in Aristophanes. The following examples may be considered with some probability to have been meant to be rhymes:

Pax 771—772 φέρε ... καὶ μὴ ἀφαίρει

Pax 925—926 βούλεσθε λαρινῶ βοῖ; βοῖ; μηδαμῶς, ἵνα μὴ βοηθεῖν ποι
δέη,
further

Pax 927—928 ἀλλ' ὅτ' ... ὕηνία,
and

Av. 299—300 κηρύλος (251) : κειρύλος.²³⁵

In Demosth. *De fals. legat.* 337 the following passage may contain a rhyme:
ἐπειδὴ δ' οὐκ ἐπὶ τῆς σκηνῆς ἀλλ' ἐν τοῖς κοινοῖς καὶ μεγίστοις τῆς πόλεως πράγμασι.

If the passages are actually meant to be rhymes some of them indicate a similar, but not identical, phonetic quality in the sounds involved, e.g. κηρύλος : κειρύλος.

Others may even reflect an identical quality, for example βοῖ : βοηθεῖν and ὅτ' : ὕηνία.

²³⁴ There is another group of onomatopoetic words that will be discussed below, pp. 265 f., because they are described by ancient authors in terms of articulation.

²³⁵ By changing κηρύλος (which is understood 251 and 298) into κειρύλος, as if from κείρειν, a joke on Sporgilus the barber is effected. The manuscripts contaminate the two words.

The philosopher Diogenes (4th century) is quoted by Athen. XIII 588 f:

Ἀρίστιππε, κοινῇ συνοικεῖς πόρνη· ἥ κύνιζε οὖν, ὡς ἐγώ, ἥ πέπαυσο.

In a hymn to Demetrius Poliorcetes quoted by Athen. VI 253 e the following phrase is found:
(θεόν) οὐ ξύλινον οὐδὲ λίθινον, ἀλλ' ἀληθινόν,
which gets full meaning if it is taken as a pun on the privative ἀ-, which then implies that ι and η were pronounced in an identical or similar way.

Arist. *Rhet.* III 9, 1410 a 33
ἐν πλείσταις δὲ φροντίσι καὶ ἐν ἐλαχίσταις ἐλπίσιν
are almost certainly meant to be rhymes.

This implies that <EI> must have corresponded either to [ei] or [i:], but not to [e:]. The pronunciation [i(:)] would of course give a desirable full identity of the rhyme, but no definite conclusion can be drawn, which is also the case in regard to quantity.

It can easily be observed that most of the words quoted are identical in two or more sounds and thus are rhyming even without being supposed to be similar or identical in some other sound. This is the case with almost all material of this sort. The phonetic evidential value of such passages is then rather insignificant.

1c. Allusions

Allusions on pronunciation are also more often found in Aristophanes than in other sources. One of the most important cases is the passage *Thesm.* 1001—1225 where the Scythian appears and speaks in a "barbaric" way: he does not distinguish between π τ κ and φ θ χ, ε ι and ι, ω and ο, and he drops final [n].²³⁶

²³⁶ The passage has been commented on by Friedrich, *Philol.* 75 (1918) 300 f.
"Einige Male glaubten wir, speziell Eigentümlichkeiten thrakisch-illyrischer Sprechweise feststellen zu können. Daneben scheint Aristophanes aber auch mehrfach die einheimisch-attische Volkssprache nachzuahmen.

Selbstverständlich müssen manche meiner Vermutungen unsicher bleiben (...). Wir wissen ja von der damaligen attischen Volkssprache äusserst wenig und von der Sprechweise attisch redender Ausländer ausser Aristophanes überhaupt nichts. Dazu sind die einheimischen Sprachen der auftretenden Barbaren (namentlich das Thrakische und Skythische) und ihr möglicher Einfluss auf deren attische Redeweise unbekannt. Soviel aber dürfte klar geworden sein, dass Aristophanes sich nicht einfach eine halbattische Sprechweise ausgesonnen hat — dagegen spricht schon die Gesetzmässigkeit der

The question to be answered is whether this pronunciation was typically Scythic or typically popular Attic.

If we had known something about Scythian it would perhaps have been easy to answer the question. For example, if there did not exist a phonemic distinction between aspirated and unaspirated voiceless stops in that language, this would explain the confusion of $\pi \tau \chi$ and $\phi \theta \chi$ by the Scythian when speaking Attic. But since we know nothing about that language we must rely on other criteria. Thus we may conclude that the failure to distinguish between aspirated and unaspirated stops cannot possibly be an Attic feature. This conclusion is based on our knowledge about the later development of the aspirated stops in Greek. Cf. *Principle 5*, below, p. 283. Consequently, if the reference is not to Attic pronunciation on this point there is no reason to suppose that this is the case in the other phenomena either.

There are further similar passages to be found in Aristoph., e.g. *Acharn.* 862—868, 902, 905, and 914, where a Theban appears on the stage uttering Boeotian forms such as $\Theta\epsilon\acute{\iota}\beta\alpha\theta\epsilon\nu \alpha\upsilon\lambda\epsilon\iota\tau\alpha\acute{\iota}, \mu\epsilon\acute{\iota}\sigma\tau\iota, \nu\epsilon\acute{\iota} \tau\omega \sigma\iota\omega, \acute{\alpha}\delta\iota\kappa\epsilon\acute{\iota}\mu\epsilon\nu\omicron\varsigma$ etc., and *Lysist.* 81, 85—86, 995, 1081 etc., where Laconians sprinkle in some Laconian forms, e.g. $\acute{\epsilon}\lambda\sigma\omega\nu, \acute{\omicron}\rho\sigma\acute{\alpha}, \sigma\iota\omega (= \acute{\epsilon}\lambda\theta\omega\nu, \acute{\omicron}\rho\theta\acute{\eta}, \theta\epsilon\omega)$. Another example is found Thuc. 5, 77, 4 $\pi\epsilon\rho\acute{\iota} \delta\acute{\epsilon} \tau\omega \sigma\iota\omega \sigma\acute{\upsilon}\mu\alpha\tau\omicron\varsigma$ in the utterance of a Laconian.

It is improbable that these features of other Greek dialects allude to popular Attic pronunciation. The sporadic dialectal strains of the speech of these visitors may simply have been meant to give some local colour to their performance. No positive conclusions about Attic pronunciation can be drawn from these passages. They may only be said to indicate that the sounds in question were not alike in Attic and in the two other dialects: in Attic the sound corresponding to $\langle\Theta\rangle$ was not a fricative, as was evidently the case in the other dialects (although the orthographic norm in those dialects was always $\langle\Theta\rangle$; the variant $\langle\Sigma\rangle$ occurs only late and is infrequent), and likewise the Boeotian $\langle\text{EI}\rangle$ (partly corresponding to Ionic-Attic $\langle\text{H}\rangle$) may be meant to illustrate a difference in pronunciation.

An allusion Aristoph. *Av.* 56—59 may seem conclusive:
 $\pi\alpha\acute{\iota} \pi\alpha\acute{\iota}.$

sprachlichen Eigentümlichkeiten —, sondern an wirkliche Beobachtung anknüpft."

— τί λέγεις, οὗτος; τὸν ἔποπα παῖ καλεῖς; οὐκ ἀντὶ τοῦ παιδός σ' ἐχρῆν ἔποποι καλεῖν;
— ἔποποι. ποιήσεις τοί με κόπτειν αὖθις αὖ. ἔποποι.

Schwyzler claims: "Das Spiel mit παῖ : ἔποποι ... ist nur sinnvoll bei einer Aussprache $a-i : o-i$ ".²³⁷

If we try the hypothesis that the words were pronounced [pá:] : [epopé:] the play on them becomes more meaningful than with a diphthongal pronunciation, because the vowel [ə] can be perceived as an imitation of the sound of the hoopoe, while this is not especially the case with [oi]: the sound of the bird is not diphthongal.

However, it would be hasty to draw any definite conclusion from this case, since [oi] too is more onomatopoeic than [ai] (or [æ]). It seems to be self-evident that the joke is meant to be onomatopoeic: a joke on the diphthongs themselves would be childish and lack any meaning.

Pax 929—933 Aristophanes introduces the "Ἰωνικὸν ῥῆμα" ὅτις to illustrate the pronunciation of the Attic interjection ὅτι. This evidently indicates that the Attic οἷς was unsuitable as an illustration, but it does not prove that Attic $\langle\text{OI}\rangle$ corresponded to a monophthong.²³⁸ In ὅτι and the Ionic ὅτις there was a syllable boundary, but most probably not in the corresponding Attic word ΟΙΣ.

However, Thuc. 2, 54, 2

$\phi\acute{\alpha}\sigma\kappa\omicron\nu\tau\epsilon\varsigma \omicron\acute{\iota} \pi\rho\epsilon\sigma\beta\acute{\upsilon}\tau\epsilon\rho\omicron\iota \pi\acute{\alpha}\lambda\alpha\iota \acute{\alpha}\delta\epsilon\sigma\theta\alpha\iota$ "ἤξει Δωριακὸς πόλεμος καὶ λοιμὸς ἅμ' αὐτῶ". ἐγένετο μὲν οὖν ἔρις τοῖς ἀνθρώποις μὴ λοιμὸν ὀνομάσθαι ἐν τῷ ἔπει ὑπὸ τῶν παλαιῶν, ἀλλὰ λιμὸν, ἐνίκησε δὲ ἐπὶ τοῦ παρόντος εἰκότως λοιμὸν εἰρῆσθαι· οἱ γὰρ ἄνθρωποι πρὸς ᾧ ἔπασχον τὴν μνήμην ἐποιοῦντο. ἦν δὲ γε οἷμαί ποτε ἄλλος πόλεμος καταλάβῃ Δωριακὸς τοῦδε ὕστερος καὶ ξυμβῇ γενέσθαι λιμὸν, κατὰ τὸ εἶδος οὕτως ἄσσονται
proves that $\langle\text{OI}\rangle$ cannot have corresponded to a diphthong [oi] in the dialect of Attic popular speech ca. 430. On the other hand the passage seems to indicate that λοιμός and λιμός were not homophones, but this possibility cannot be excluded.²³⁹

²³⁷ GG I 194, n. 2.

²³⁸ This was the too hasty conclusion of Papadémétracopoulos, p. 193.

²³⁹ Cf. Kühner—Blass, p. 53 note, Zacher, p. 16, and Sturtevant, pp. 51 f. Sturtevant's argument that the verbs ὀνομάσθαι, εἰρῆσθαι, and ἄδεσθαι refer to pronunciation is not decisive; the first two may in this context denote "mean" in the first place, not necessarily "say", and the phrase οὕτως ἄσσονται may be interpreted as = "quote the oracle in this sense".

Almost all the material in this field is supplied by Plato in his *Cratylus*. This book offers a lot of rather capricious "etymologies" (391—427) must be understood as a farce or playful experiment to show the absurdity of the Heraclitic theory of the origin of words represented by *Cratylus*.²⁴¹ This implies that the way was open to Plato to present bold whims and fancies almost at will. Consequently, we may not suppose that Plato consistently followed something like a principle of phonetic identity or even similarity in his "analyses". It is possible that this has mostly been the case, but there are enough examples to the contrary to confute such a theory. This is discussed below, pp. 258—260.

Because of the extensiveness and general nature of this material it has seemed to be adequate to account for it more exhaustively than other secondary material: instances cannot reasonably be selected and discussed in isolation but the partly disparate data should be studied comprehensively.

However, not all examples found in *Cratylus* are collected here. The passages quoted are such as contain some comparably reliable phonetic reference.

The data have been assorted according to sounds possibly alluded to. Some examples are quoted under more than one heading. The division of the material into groups has been made according to the vowels involved. However, it is evident that consonants are often referred to together with the vowels, but a sub-division seemed inexpedient. Only after the groups of words with relevance to vowels are some examples given where references are probably in the first place to consonants.

[i(:)] : [e(:)] : [ɛ:]²⁴²

394 e Ὀρέσσης : ὀρεινόν

²⁴⁰ Strictly speaking this term is not quite adequate. The mostly imaginative relations between words that constitute the material of this part should be called popular etymologies.

²⁴¹ Cf. Gauss, pp. 205 f.

²⁴² The notations refer to tentative phonemes (cf. above, pp. 36 f.).

- 395 b—c Ἀτρεὺς : ἀτειρές, ἄτρεστον, ἀτηρόν
 397 d θεός : θεῖν
 398 b δαίμονες : δαήμονες
 398 c—d ἥρως : ἔρως, ἐρωτᾶν, εἶρειν
 402 e Ποσειδῶν : "ποσίδεσμον", πολλά εἰδώς
 404 b "Αἰδης : αἰδοῦς,²⁴³ εἰδέναι
 404 b Δημήτηρ : διδοῦσα ὡς μήτηρ
 404 b—c Ἥρα : ἔρατή
 406 a—b Ληθώ : λήθος, λείον
 406 b Ἀρτεμις : ἀρτεμές, ἀρετῆς ἱστορία
 407 a Ἀθηνᾶ : ἄθεονόα, ἡ τὰ θεῖα νοούση, Θεονόη
 408 a Ἑρμῆς : εἶρειν, Εἰρέμης
 409 a ἥλιος : ἀεὶ εἰλεῖν ἰών
 410 a ἀήρ : αἶρει, ἀεὶ ῥεῖ
 410 b αἰθήρ : ἀεὶ θεῖ, "ἀειθεῖρ"
 411 d νόησις : νέου ἔσις
 411 e σύνεσις : συνεῖναι
 412 c—d δικαιοσύνη : ἡ τοῦ δικαίου σύνεσις
 415 c—d ἀρετή : ἀεὶ ρέον, "ἀειρεϊτήν"
 416 a—b αἰσχρόν : τὸ ἀεὶ ἰσχόν τὸν ροῦν, "ἀεισχοροῦν"
 418 b δέον : ζημιῶδες
 418 c ἡμέρα : ἡμείρειν
 420 a ἡμερος : ἰέμενος, ἔσις τῆς ῥοῆς
 420 b—c οἴησις : οἴσις
 420 d ἐκούσιον : τὸ εἶκον τῷ ἰόντι

The following examples appear to indicate an identical or similar quality in the sounds corresponding to <H> and <EI>: 395 b—c, 398 c—d, 406 a—b, 407 a, 409 a, and 410 b.

Identity or similarity in the sounds corresponding to <E> and <EI>: 394 e, 395 b—c, 397 d, 398 c—d, 407 a, 408 a, 411 e, 415 c—d, 418 c, and 420 d.

Identity or similarity in the sounds corresponding to <H> and <E>: 395 b—c, 398 c—d, 404 b—c, 406 b, 407 a, 411 d, 412 c—d, and 418 b.

Identity or similarity in the sounds corresponding to <EI> and <I>: 402 e, 404 b, 409 a, 410 b, and 416 a—b.

²⁴³ Most manuscripts have the form αἰδοῦς.

Identity or similarity in the sounds corresponding to <E> and <I>: 406 b and 420 a.
 Identity or similarity in the sounds corresponding to <H> and <I>: 398 b, 404 b, 410 b, 418 c, and 420 b—c.

[ai]

- 398 b δαίμονες : δαήμονες
 407 c "Ηφαιστος : φάεος Ἰστωρ
 408 d Πάν αἰπόλος : Πάν ἀεὶ πολῶν
 409 b σελαναία : σέλας νέον καὶ ἔνον ἔχει ἀεὶ
 410 b ἀήρ : αἶρει, ἀεὶ ῥεῖ
 410 b αἰθήρ : ἀεὶ θεῖ, "ἀειθεήρ"
 410 c γαῖα : γεννήτειρα, γεγάασιν
 412 d δίκαιος : διαῖόν
 416 b αἰσχροὺς : τὸ ἀεὶ ἴσχον τὸν ῥοῦν

[a:i]

- 404 b "Αἰδης : αἰδοῦς, εἰδέναι

Evidence for a diphthongal character in the phonetic correspondence of <AI>: 398 b, 407 c, 408 d, 409 b, 410 b ἀήρ and αἰθήρ, 412 d, and 416 b.

Evidence for monophthongal character in the phonetic correspondence of <AI>: 409 b, 410 c, and perhaps 407 c.

The instance 404 b "Αἰδης : αἰδέες may indicate a diphthongal pronunciation of the original diphthong [a:i].

[ɔ:] : [o] : [u:]

- 396 c οὐρανία : ὀρῶσα τὰ ἄνω
 402 c Τηθύς : διαττώμενον, ἡθούμενον
 405 c 'Απόλλων : ἀπόλυσις, ἀπόλουσις, "Απολούων", ἀπλούν
 405 c—d ἡ ὁμοῦ πόλῃσις : ὁμοπολῶν
 406 a αἱ Μοῦσαι : ἀπὸ τοῦ μῶσθαι
 406 c οἶνος : οἷεσθαι νοῦν
 410 c ὦραι : ὀρίζειν
 411 d φρόνησις : φορᾶς καὶ ῥοῦ νόησις
 411 d γνώμη : γονῆς νόμησις
 416 a—b αἰσχροὺς : τὸ ἀεὶ ἴσχον τὸν ῥοῦν, "ἀεισχορροῦν"

- 417 d—e βλαβερόν : βλάπτων τὸν ῥοῦν
 420 b δόξα : δῶξις, τόξον
 420 c βουλή : βολή

[ɔ:i]

- 400 c σῶμα : σώζεται

[oi]

- 406 c Διόνυσος : ὁ διδοῦς τὸν οἶνον "Διόνυσος"
 420 b—c οἷησις : οἷσις

The following examples appear to indicate a similar or identical quality in the vowels corresponding to <OY> and <O>: 396 c, 405 c—d, 406 c, 411 d, 416 a—b, 417 d—e, and 420 c.

Identity or similarity in the sounds corresponding to <Ω> and <O>: 410 c, 420 b, and perhaps 411 d.

Identity or similarity in the sounds corresponding to <Ω> and <OY>: 402 c, 405 c, and 406 a.

The instance 400 c may perhaps reflect a monophthongal pronunciation [ɔ:] of the original diphthong [ɔ:i].

A diphthongal pronunciation of the original diphthong [oi] appears to be indicated by the instance 420 b—c, while the instance 406 c seems to hint at a monophthongal character.

In the following examples the reference is probably in the first place to the consonants involved:

[p^h] : [p] : [p^{hs}]

- 400 b ψυχή : ἡ φύσιν ὀχεῖ καὶ ἔχει, "φυσέχη"
 409 c ἀστραπή : ἀναστρέφει

[t^h] : [t] : [s]

- 401 d Ἑστία : οὐσία, ὠθοῦν, ὠσία
 402 c Τηθύς : διαττώμενον, ἡθούμενον
 422 a ἀγαθόν : ἀγαστόν, θοόν

[k^h] : [k]

- 415 a—b μηχανή : μῆκος

The instance 409 c hints at a stop quality in the sound corresponding to <Φ>, and 400 b appears to indicate a similarity in the sounds corresponding to <Φ> and <Ψ>.

A stop quality in the sound corresponding to <Θ> is perhaps indicated by the instance 402 c, while a fricative quality may be said to be traced in 401 d and 422 a.

The instance 415 a—b seems to reflect a stop quality in the sound corresponding to <Χ>.

[h]

- 393 a "Εκτωρ : ἔχειν
 396 a Διός : δι' ὃν ζῆν
 398 c—d ἦρως : ἔρως, ἐρωτᾶν, εἴρειν
 401 d Ἑστία : ἐσσία, οὐσία, ὠθοῦν
 404 b "Αιδης : αἰδές, εἰδέναι
 404 b "Ηρα : ἐρατή
 404 c "Ηρα : ἀήρ
 408 a Ἑρμῆς : εἴρειν, Εἰρέμης
 410 d ἔτος : ἔν τι
 420 d ἐκούσιον : τὸ εἶκον
 437 a ἐπιστήμη : ὅτι ἴστησιν

The sound [h] seems to be neglected in these examples, which may indicate that it had disappeared.

[r] : [r:]

In 407 c "Αρης : ἄρρητον the opposition [r] : [r:] seems to be neglected.

An adequate phonetic evaluation of this manifold material is very difficult, not to say impossible. It may be observed that there is always evidence both for and against each theory, sometimes in one and the same case, for example: 409 b σελαναία is "derived" from νέον and ἔνον but there is also a reference to αεί. It is, then, impossible to interpret this case as evidence for either a diphthongal or monophthongal character of the original diphthong [ai].

The passage 406 c Διόνυσος : "Διοίνυσος" seems to hint at a monophthongal pronunciation of the sound corresponding to <ΟΙ>, while 420 b—c indicates a diphthongal character.

Such disparate evidence is typical of all this material.

But there are also other problems to be discussed.

Firstly, 414 b—c τέχνη : ἔξις νοῦ cannot possibly refer to the vowels corresponding to <Η> and <ΟΥ> but only to the consonants corresponding to <Χ> and <Ξ> and to the vowel corresponding to <Ε>. In the following examples, however, the reference is probably both to vowels and consonants, although similarity cannot have been intended in the vowels: 405 c αεί βολῶν ἐγκρατῆς : αεί βάλλων, 419 c ὀδύνη : ἔνδυσις and χαρά : διάχυσις, 420 a ἔρως : ἐσρεῖ.

In a large number of cases quoted above there may also be references to consonants as well as vowels. We cannot know, in each case, whether it refers to either of the alternatives exclusively, or to both. Consequently, definite phonetic conclusions from such cases are impossible.

Secondly, we read 410 c Αἱ μὲν ὄραι Ἀττικιστὶ ὡς τὸ παλαιὸν ῥητέον, εἴπερ βούλει τὸ εἰκὸς εἰδέναι. HOPAI γὰρ εἰσι διὰ τὸ ὀρίζειν χειμῶνάς τε καὶ θέρη καὶ πνεύματα κτλ.

Shall we think that Plato is talking here about speech or writing? Or does he speak of both at once? The word ῥητέον apparently refers to speech, but why does the author find it necessary to refer to the Old Attic alphabet and so put forward the form ὄραι as a basis for the derivation from ὀρίζειν? Does he claim that ὄραι should be pronounced with a short [o]? Or does he uphold that the word is to be pronounced [hórai] when written <HOPAI>, but [hó:rai] (or even [ó:rai]) when written <ΩPAI>?²⁴⁴

Either we should have to assume that Plato thought that <Ο> in OA <HOPAI> had *once* actually corresponded to [o] and should thus rightly be pronounced so—an assumption that seems rather questionable—or we must understand the passage as referring to writing—in spite of the word ῥητέον.

But shall we think that this is the only example of reference to writing in the material? Certainly not; cf. 420 a—b Ἐρως δέ, ὅτι εἰσρεῖ ἔξωθεν ... ἔσρος τό γε παλαιὸν ἐκαλεῖτο — τῷ γὰρ οὐ ἀντὶ τοῦ ὦ ἐχρώμεθα — νῦν δ' ἔρως κέκληται διὰ τὴν τοῦ ὦ ἀντὶ τοῦ οὐ μεταλλαγὴν.

Two further instances may be cited: 402 e τὸν ... θεὸν ὠνόμασεν Ποσειδῶνα, ὡς "ποσίδεσμον" ὄντα· τὸ δὲ εἰ γκεῖται ἴσως εὐπρεπείας ἕνεκα.

²⁴⁴ The sound [h] is of course irrelevant to the discussion.

Does this note refer to speech or writing? If it refers to pronunciation, shall we suppose that the sequence <EI> represented a diphthong [ei] in the 4th century even /-[C]? There is also the passage 400 b τῇ δυνάμει ταύτῃ, ἣ φύσιν ὀχεῖται καὶ ἔχει, "φυσέχτην" ἐπονομάζειν. ἔξῃσι δὲ καὶ ψυχὴν κομψεύμενον λέγειν, with a similar allusion to "embellishment", but without a clear indication whether the reference is to speech or writing.

The conclusion will be the following: The evidence of the allusions on pronunciation found in the dialogue *Cratylus* should not be disregarded, but the general linguistic character of the material, together with the content and style of the dialogue, prevents a detailed evaluation of individual examples.

Thus, the suggestions of phonetic evidence made pp. 255—258 should be taken as hints, not as conclusions. Outside Plato's *Cratylus* there is very little material of this kind. Only the popular etymologic form Ἡφιστιάδης > Ἰφιστιάδης may be mentioned. It is found from the 4th century onwards.²⁴⁵

2. Loan-words

a. Foreign loan-words in Attic

There are hardly any loan-words in Attic that can be proved to have been borrowed directly into this dialect. Some of the earliest loans came from Old Persian, but most of them were almost certainly first borrowed into Ionic. Consequently, that material must be ranged under *Sub-class B* (cf. above p. 243).

A few examples²⁴⁶ are discussed here to illustrate some practices of transcription in borrowing.

Old Persian [wi] is represented by ὕ- in a number of proper nouns: Ὑδάρνης, Ὑδάσπης (Ὑστάσπης), Ὑσπάβαρος etc. Old Persian *Vi(n)dajarnā* is first represented by Ἰνταφρένης, later by Ἰνδοφρένης.²⁴⁷

²⁴⁵ Cf. Mhs, p. 117, 12.

²⁴⁶ Extensive material is offered by Jacobsohn, *KZ* 54 (1924) 254—286. For references see Schwyz., *GG* I 153.

²⁴⁷ The loanwords are naturally fitted into the flectional pattern of the borrowing dialect. The vocalism of terminations is thus without any phonetic evidential value. This is true also in other positions, e.g. Persian *Māda-*,

Old Persian *haṣā-maniš* > Ἀχσιμένης; also (Ἀριζ)μένης, (Ἀρσζ)μένης.²⁴⁷

In the 5th century Old Persian [θr] is represented by Greek -τρ- (Μιτρογάτης, σατράπης), but from the 4th c. by -θρ- (Μιθριδάτης).²⁴⁸

Old Persian [wa] and [pa:] are represented by βζ: *Varzāna* > βαρζάνης; *pāta* > (Μιτρο)βάτης.

Old Persian [ar] corresponds to Greek αρ or ερ: Μάρδος, Μερδίας, Φαρνα(βάτης), (Ἀρτα)φέρνης.

The words mentioned were probably borrowed in the second part of the 6th or at the beginning of the 5th century, but we do not know about any of them or of others not mentioned here, if they were borrowed directly into Attic and thus got their orthographic form there. It may safely be maintained that this is very improbable.

Apart from this, the few examples quoted suffice to show that the practices of orthography in borrowing were very capricious and, consequently, preclude any safe conclusion about Attic pronunciation.

There is—as far as I know—only one Persian word that is first found in an Attic document, namely παράδεισος (Xen. *Anabasis* II 7). The Persian form was (*pori-doīza*) *pairidaēza* > *par(i)-dēza*. The Persian monophthongization had probably been accomplished when Xenophon wrote the word ca. 400. The case has traditionally been considered to prove an e-quality of the Attic sound corresponding to <EI> at that point of time. However, there are four objections to that opinion.

Pārsa > Ionic Μῆροι, *Πήρσαι > Πέρσαι. The vowel [a:] fell outside the phonetic pattern and was replaced by [ε:] (cf. Szemerényi, p. 145).

Later when the new Greek /a:/ had arisen the Persian vowel fitted into the system and was retained (cf. Jacobsohn, *l.c.*, pp. 266 f.).

As regards Persian [wi] represented by Greek <Υ> cf. Allen, *Vox Graeca*, p. 63.

²⁴⁸ Schwyz., *GG* I 206 suggests that this change of orthography should be looked upon as conclusive evidence of a fricative pronunciation of the sound corresponding to <Θ> in Ionic and Attic from that time.

But there were no aspirated stops in Persian. It is only natural that the fricative series [f, θ, x] was represented by graphemes <Φ, Θ, Χ> that were nearest at hand and unemployed. Persian [f] was represented by Greek <Φ> from the earliest times (e.g. Ἰνταφρένης); if Schwyz.'s theory were accepted we should have to conclude that the sound was a fricative in Ionic/Attic already ca. 500. But such an interpretation is firmly rejected by Schwyz. himself p. 153.

Firstly, it can be seen from the words quoted above that the representation of the Persian sounds by the Greek alphabet was not consistent. This is a general Greek phenomenon, especially in early times.

Secondly, we do not know if (the conservative) Xenophon wrote his *Anabasis* in the Old Attic or the Ionic alphabet. If his book was originally written in the OA alphabet the word must have been spelled with <E>: παράδεσος.

When the word was then transliterated into the Ionic alphabet during the first half of the 4th century there is the possibility that the OA <E> in that foreign word was mistakenly represented by <EI> instead of the correct <H>. ²⁴⁹

These two objections, however, may be said not to be decisive: Xenophon may very well have transcribed the word consciously, and it can also be supposed that he actually wrote in the cosmopolitan Ionic alphabet (cf. below, p. 270, n. 265).

But there are two difficulties left: we do not know if the word had not been in use in Ionic or other Greek dialects before Xenophon mentioned it and, consequently, had acquired a fixed orthography long before 400, and finally the phonetic quality of the Persian sound in question cannot be said to be exactly known. In the 4th c. it may very well have changed into [i:]. ²⁵⁰ As our knowledge of the chronology of Persian sound changes is not very detailed, there is the possibility that the change took place at the end of the 5th century.

Consequently, this isolated case is not conclusive. No exact conclusions are to be drawn from the other Persian loan-words either. Firstly our knowledge of Persian phonetics is not exact enough, secondly the rather capricious way of representing the foreign sounds in Greek writing is a great difficulty, and finally there certainly were sounds in Persian that could not possibly be adequately rendered in Greek alphabets at all.

These difficulties are naturally general and do not only concern

the relations between Persian and Greek. If there might actually exist some loan-words in Attic that can be shown to have been borrowed directly into that dialect during the period covered in this work, their evidence is probably of small significance. Consequently, it appears not to be necessary to penetrate further into this material.

b. Attic words in other languages

No Greek loan-words in other languages can be shown to have been borrowed directly from Attic during the period concerned with in the present work. The whole immense material, e.g. the large number of Greek words in Latin, cannot be considered directly relevant and thus falls outside this study. ²⁵¹

3. Orthophony

Generally speaking it may be maintained that this is the most conclusive kind of secondary material. Statements about pronunciation must—if they can be interpreted in an unambiguous way—be considered comparably reliable sources. However, there is always the problem of interpretation, which usually reduces the value considerably.

The earliest material of the kind is found in Plato. In *Crat.* 418 b—d he discusses the front vowels:

ΣΩ. Ἐγὼ σοι ἐρῶ. οἴσθα ὅτι οἱ παλαιοὶ οἱ ἡμέτεροι τῷ ἰῶτα καὶ τῷ δέλτα εὖ μάλα ἐχρῶντο, καὶ οὐχ ἥκιστα αἱ γυναῖκες, αἵπερ μάλιστα τὴν ἀρχαίαν φωνὴν σῶζουσι. νῦν δὲ ἀντὶ μὲν τοῦ ἰῶτα ἢ εἰ ἢ ἦτα μεταστρέφουσιν, ἀντὶ δὲ τοῦ δέλτα ζῆτα, ὥς δὴ μεγαλοπρεπέστερα ὄντα.

EPM. Πῶς δὴ;

²⁵¹ The matter has been appositely characterized by Papadém., p. 161 (concerning Lat. *Ajax*, *Maia*, *Troia*): "Si nous admettons que ces formes ont eu naissance du temps des rois Tarquins ... dans ce cas, ces formes là ne pourront avoir aucun indice sur la prononciation de l' *ai* sous Périclès et Platon à Athènes, mais bien sur la prononciation de ces noms dans la reste de la Grèce pendant le VIII et le VII siècles av. J.-C. quand se formèrent les premières colonies grecques en Italie et en Sicile."

This applies equally well to later loans in Latin and in other languages. For example, when after Alexander the Greek language was spread over the world, it was certainly not only the Athenians who lent their words to other peoples.

²⁴⁹ For the different sources of error in the transliteration cf. Herzog, pp. 39—43: "Die Mehrdeutigkeit des alten E und O musste bei der Umschrift zu Fehlern und Schwankungen führen" (p. 39). "Missgriff in der Umschrift: Aus *ε* wird *ει* statt *η*, aus *ο* wird *ου* statt *ω* gemacht und umgekehrt" (p. 42). Of course such errors are even more likely to occur in the transliteration of loan-words.

²⁵⁰ Cf. Jacobsohn, *KZ* 54 (1924) 258 note.

ΣΩ. Οἷον οἱ μὲν ἀρχαιοτάτοι "ἡμέραν" τὴν ἡμέραν ἐκάλουν, οἱ δὲ "ἑμέραν," οἱ δὲ νῦν "ἡμέραν."

ΕΡΜ. Ἔστι ταῦτα.

ΣΩ. Οἶσθα οὖν ὅτι μόνον τούτων²⁵² δηλοῖ τὸ ἀρχαῖον ὄνομα τὴν διάνοιαν τοῦ θεμένου; ὅτι γὰρ ἀσμένους τοῖς ἀνθρώποις καὶ ἱμεῖρουσιν ἐκ τοῦ σκοτούς τὸ φῶς ἐγίγνετο, ταύτῃ ὠνόμασαν "ἡμέραν."

The passage has always been considered difficult. Plato clearly states that there existed at least two pronunciations of the word ἡμέρα (ἑμέρα may refer to writing; cf. above, p. 259) at the same time.

But should we believe him when he maintains that the i-pronunciation is the old and original one? There is no other evidence to support this. It is easy to show that Plato's statement cannot be generalized to comprise the whole (tentative) phoneme /e:/. Apart from the overwhelming counterevidence of comparative linguistics, it would imply that an original phoneme /i:/ (corresponding to the OA graphemes <I> and <E>—incidentally an inexplicable anomaly with two graphemes used from the beginning corresponding to one phoneme—) underwent a split without any demonstrable cause. But supposing that this actually took place, the new phoneme /e:/, arisen through this hypothetical split of /i:/, would have merged with the already existing phoneme /e:/ (arisen through contraction or compensatory lengthening), before it reached the stage [ε:] (as in ἡμέρα).

It is obvious, then, that the passage must be interpreted in another way. If we do not suppose that it is altogether nonsense,²⁵³ the only possible interpretation is that there actually existed more than one pronunciation at the same time,²⁵⁴ and that the narrow quality [e:] or [i:] must have existed in the dialect of a part of the Attic population for a considerable length of time when Plato wrote his *Cratylus*.²⁵⁵

²⁵² There is also the reading τοῦτο.

²⁵³ This is the opinion of Kühner—Blass, p. 50.

²⁵⁴ The repeated use of οἶσθα appears to indicate reality.

²⁵⁵ There is good reason to suppose that in general the women were illiterate or knew only very little of writing. This means, of course, that very few, if any, documents in our corpus (above, pp. 67 f.) can have been written by women, and that the dialect of that half of the population cannot be studied by means of graphic material at all. Even supposing that the women knew to write they cannot be expected to have worked as stonemasons, and we do not know of any female vase-painter either.

The evidence of the graphemic neutralization 6b (above, pp. 184 ff.) is thus paralleled by this orthophonic statement in Plato. There are 6 (perhaps 8) instances of that neutralization dated before 500 and 24 before 400.

A similar interpretation of the statement quoted above about the *delta* and the *zeta* 418 b—c (cf. also 419 b) is perhaps also the most probable one and may reflect the change [zd] > [z(:)], which is to be seen in the primary graphic material (cf. above, pp. 225—227).

The sounds corresponding to <EI>, <H>, and <Z> are called *μεγαλοπρεπέστερα* than those of <I> and <Δ> (418 c). This judgement obviously refers to phonetic quality. This is true also in regard to vowels, since the i-vowel in *ἱμεῖρω* was long as well as the first vowel in ἡμέρα. Only in the second place may quantity have been meant.

Likewise, the reference may be to either or both quality and quantity *Crat.* 427 c where the sounds corresponding to <A> and <H> are called *μεγάλα*, *Crat.* 416 c where τὸ καλόν is said to have originated through a modification of τὸ καλοῦν, and *Faedr.* 244 d where the sound of <Ω> is characterized as *σεμνός* in comparison with that of <O>.

Only when *μῆκος* is said (*Crat.* 427 c) to be a characteristic of <H> must the reference be to quantity alone.

The statement *Crat.* 402 e

τὸν ... θεὸν ὠνόμασεν Ποσειδῶνα, ὡς "ποσίδεσμον" ὄντα· τὸ δὲ εἰρηκεῖται ἴσως εὐπρεπείας ἕνεκα
is ambiguous, and this is also the case with 400 b "φυσέχη": ψυχή (cf. above, p. 260).

In the discussion *Crat.* 426 d—e about the sound corresponding to <P> as occurring in words such as *ρέϊν*, *ρόή*, *τρόμος*, *τρέχειν*, *κρούειν*, *θράυειν*, *ερείκειν*, *θρύπτειν*, *ρύμβειν* Plato rightly observes their onomatopoetic character. However, this fact alone does not suffice to decide definitely whether the sound was trilled or fricative. Only the clear statement 426 e

ἑώ<ρα> γάρ, οἶμαι, τὴν γλῶτταν ἐν τούτῳ ἥκιστα μένουσαν, μάλιστα δὲ σειομένην proves that the sound was a trilled [r].

Onomatopoetic notices alone very seldom provide clear evidence. For example, *Crat.* 427 a the sounds corresponding to <Φ>, <Ψ>, <Σ>, <Ζ> are exemplified by words such as *ψυχρόν*, *ζέον*, and *σειέσθαι*,

In the light of this, Plato's statement about the pronunciation of women must be considered highly important.

but their onomatopoetic character is so doubtful that they tell us little about pronunciation.

This is also the case with δεσμός and στάσις (427 a—b), which are thought by Plato to be onomatopoetic and illustrate the stop quality of [d] and [t].

Only the descriptive statements: πνευματώδη τὰ γράμματα, τὸ φυσῶδες, and ἡ τοῦ δέλτα συμπέσις καὶ τοῦ ταῦ καὶ ἀπέρισις τῆς γλώττης respectively make the two passages conclusive.²⁵⁶

The observation made *Crat.* 427 c would be more suitable for [m]:
τοῦ δ' αὖ νῦ τὸ εἶσω αἰσθόμενος τῆς φωνῆς, τὸ "ἔνδον" καὶ τὰ "ἐντὸς" ὠνόμασεν.

However, the correct observation 427 b that the sound [l] depicts in many words something slippery: γλισχρόν, γλυκύ, γλοιῶδες, is itself enough to indicate clearly that [l] had a lateral (not retroflex or cacuminal) quality. But this is exceptional.

Plat. Com. Fr. 168 Kock

ὅποτε μὲν χρεῖη "διητώμην" λέγειν,
ἔφασκε "δητώμην", ὅποτε δ' εἰπεῖν δέοι
"ὀλίγον", "ὀλίον" ἔλεγεν

proves that in the speech of the person in question the sound corresponding to <Γ> was something else than [g], at least in the word mentioned. However, it is said about the man that ὁ δ' οὐ γὰρ ἡττίκιζεν, which makes the example questionable: Did the man speak another dialect than Attic or did he speak "vulgar" and bad Attic, viz. from the point of view of the poet?

The circumstance that this passage is exactly paralleled by the occasional omission of <Γ> in writing (Vars. 145—146, pp. 137 f.) constitutes an important coincidence, but since the passage cannot be shown to refer to Attic pronunciation at all, it remains weak.

The only safe conclusion to be drawn from this example is that part of the population did not drop [g] / [i]—[o].

Arist. *Soph. El.* 10,20,177 b 1 seems to indicate the existence of [h]:
οὐ γὰρ ὁ αὐτὸς λόγος γίνεται διαιρούμενος, εἴπερ μὴ καὶ τὸ ὅρος καὶ ὅρος τῇ προσωδία λεχθὲν σημαίνει ἕτερον. ἀλλ' ἐν μὲν τοῖς γεγραμμένοις

²⁵⁶ Exact conclusions, however, are not possible: Arena, *RIL* 94 (1960) 550 thinks that the passage can be taken as an indication that the phonetic correspondence of <Ζ> was [z] or [dz] rather than [zd], but the opposite conclusion is equally probable.

ταῦτ' ὄνομα, ὅταν ἐκ τῶν αὐτῶν στοιχείων γεγραμμένον ᾖ καὶ ὡσαύτως, καὶ καὶ δ' ἤδη παράσημα ποιοῦνται, τὰ δὲ φθεγγόμενα οὐ ταῦτά.

An important but somewhat doubtful passage is found Arist. *Metaph.* I 9,993 a 4:

ἀμφισβητήσῃς γὰρ ἂν τις, ὥσπερ καὶ περὶ ἐνίας συλλαβάς· οἱ μὲν γὰρ τὸ ζα²⁵⁷ ἐκ τοῦ σ καὶ δ²⁵⁸ καὶ α φασὶν εἶναι, οἱ δὲ τινες ἕτερον φθόγγον φασὶν εἶναι, καὶ οὐθέν α τῶν γνωρίμων.

It should be observed that the ΖΑ and the Δ in our text are modern conjectures. Only ΣΜΑ and Μ respectively are found in the manuscripts.

Only the especially important statements made in this passage have caused its discussion here. Otherwise the corruptions in the text would be reason enough not to mention it at all: phonetic conclusions cannot, of course, be based on conjectures in copied texts.

The inexact reference of the word φθόγγος constitutes a problem: does it refer to both [s] and [m] (or [d]) or to either of these sounds?

The answer to this question is essential for the evaluation of the conjectures ΖΑ and ΖΗΤΑ (see note 257 below). If it is assumed that ΣΜΑ is the correct reading, a reference to both consonants as being one φθόγγος seems quite improbable, not to say impossible, while this is quite natural if Aristotle was actually speaking about Ζ. To decide between ΖΑ and ΖΗΤΑ we should consider the role played by the *alpha* in this context. In ΣΜΑ and ΖΑ it is completely meaningless and rather embarrassing, while it becomes natural if we accept the conjecture ΖΗΤΑ.

Further, the characterization "unknown" becomes understandable if taken as referring to a transitional stage during the change [zd] > [z(:)]. A change in the sequence [zm] is not known.

Consequently, an emendation of the text so as the reference is to the sound(s) corresponding to Ζ is certainly correct.

Another difficulty lies in the extraction of Aristotle: he was born in the Ionian city of Stagira and did not come to Athens until he

²⁵⁷ The manuscripts have ΣΜΑ. The text may originally have had ΖΗΤΑ, which is more probable than the meaningless syllable ΖΑ, which has been conjectured. If the cross strokes of Η and Τ were written somewhat obliquely ΗΙ the two letters may have been misunderstood as Μ by a copyist. Then Σ was substituted for Ζ from the context, where Σ and Δ are found.

²⁵⁸ The manuscripts have Μ. This letter may have transferred from the false ΣΜΑ (cf. note 257).

was 17 years old. However, it is quite probable that the statements refer to Attic and not to any other Greek dialect. But this is not expressly stated.

To sum up, it may be maintained that this passage provides some evidence in support of the change that underlies the graphemic neutralizations 36a—36c (cf. above, 225 ff.). However, this evaluation depends entirely on the existence of these graphemic neutralizations; the passage would lack phonetic evidence if it were isolated.

The existence of two phonological theories as reported by Aristotle is important, especially if the reference actually is to the phonetic correspondence of <Z>, which, as we have seen, is probable. The theory that <Z> corresponded to a sequence of [s] + [d] proves that the change into [z(:)] cannot have taken place very long before Aristotle's time. If we want to accept Bartoněk's vague suggestion (*Consonants*, p. 174) that this change may have taken place some time during the period 600—350 we must assume that Greek phonetic theory originated as early as ca. 600, which is very improbable. The change cannot antedate the origin of the theory that the zeta represented $\sigma + \delta$. For a further discussion see below, pp. 273 f.

4. Secondary graphic evidence

Material of this kind may be expected to be supplied by the transition from the OA to the Ionic alphabet in 403.

In Boeotian and Thessalian this reform implied a radical reorganization of the grapheme-phoneme correspondences, which proves that a number of phonetic changes had been accomplished.

In Attic there is no such reorganization. This fact has traditionally often been thought to prove that the Attic phonemic system after 403 had principally the same character as in the 5th century and also that it was largely identical with the contemporary Ionic.

Thus, the acceptance of the Ionic <H> by the Athenians in its Ionic correspondence is taken as an indication that the Attic vowel was "virtually identical with the Ionic in the fifth century; $\eta = [\epsilon:]$ ".²⁵⁹ The continued use of OA <AI> and <OI> (graphically identical with the corresponding Ionic graphemes) is looked upon

²⁵⁹ Sturtevant, p. 34. Cf. also Allen, *Vox Graeca*, p. 70.

as evidence of a diphthongal Attic pronunciation.²⁶⁰ just as the Boeotian innovations <H> in the place of Ionic-Attic <AI> when the Ionic alphabet was introduced in the 4th c., and <Y> for Ionic-Attic <OI> from ca. 250 onwards prove a monophthongal pronunciation of the corresponding sounds in that dialect.

The introduction of the Ionic graphemes <Ξ> and <Ψ> is looked upon by Pernot as evidence of an accomplished change of the original Attic phonemic sequences into the corresponding Ionic sounds that are supposed by Pernot to have been single consonants.²⁶¹

Such conclusions are based on the unproved hypothesis that the Athenians introduced the Ionic graphemic system mainly or totally for phonetic/phonemic reasons and thus according to phonetic/phonemic principles.²⁶²

However, this hypothesis is abandoned on one point: it is generally agreed that the sound [h] remained also after 403. This conclusion is made in spite of the fact that there is no Attic graphemic counterpart of this sound after the introduction of the Ionic alphabet.²⁶³

²⁶⁰ Cf. Schwyz., *GG* I 194, Sturtevant, pp. 48 and 52, and Pernot, pp. 142 f.
²⁶¹ Pernot, pp. 68—70. "Quelle qu'ait été la valeur de ce X et de ce Φ, il est évident que les groupes XΣ et ΦΣ répondaient à un son double. Les Ioniens au contraire ont employé ici des lettres uniques, Ξ et Ψ. C'est donc que chez eux ks et ps se prononçaient chacun comme un son simple. Et, si cette notation a plus tard pénétré en Attique, on en doit conclure qu'alors le Ξ et le Ψ y étaient aussi des sons simples."

²⁶² The hypothesis is implicitly expressed by Pernot, p. 122, when he discusses /i:/ and /e:/: "S'il y avait eu identité parfaite entre ces deux sons, au moment de la réforme d'Archinos (403), on aurait, dès ce moment-là, adopté officiellement la graphie I au lieu de EI."

It has been maintained (Usener, *Rhein. Mus.* 25 (1870) 591 f.) that Archinus of Koile, the initiator of the reform, performed or inspired some kind of phonetic analysis as a basis for the introduction of the Ionic alphabet. The theory is based on Syrianus in *Arist. Metaph.* p. 191,29 Kroll (5th c. A.D.):

ταύτη δὲ τῇ ἀποδόσει καὶ Ἀρχίνος ἐχρήτο, ὡς ἱστορεῖ Θεόφραστος· ἔλεγε δὲ ὁ Ἀρχίνος ἢ ἔξω τι παρὰ τὴν μῦσιν τῶν χειλῶν ἐκφωνεῖσθαι, ὥσπερ τὸ π, καὶ διὰ τοῦτο τὸ ψ πρὸς τῷ ἄκρῳ γεννᾶσθαι τῆς γλώττης ὡς ἐκ τοῦ π σ συγκείμενον· ἢ τῷ πλάτει τῆς γλώττης παρὰ τοὺς ὀδόντας, ὥσπερ [δὲ] τὸ δ, καὶ διὰ τοῦτο τὸ ζ κατὰ ταύτην γεννᾶσθαι τὴν χώραν· ἢ τῷ κυρτῷ πιεζομένῳ ἐκ τοῦ ἐσχάτου, ὥσπερ τὸ κ, ὅθεν τὸ ξ προέειναι.

Only these letters are discussed; it cannot by a long way be concluded from this passage that Archinus initiated a general phonological examination of the Attic dialect.

²⁶³ Cf. Schwyz., *GG* I 220.

But the conclusion is safely founded on other evidence, namely the spelling $\varphi \theta \chi$ instead of $\pi \tau \kappa$ before that sound.²⁶⁴ If the sound existed in Attic even after the introduction of the Ionic alphabet, this implies that on this point there was a marked difference between the two dialects. If it is presupposed, then, that the Ionic and the Attic phonemic systems were otherwise identical, so that the Ionic graphemic system squared exactly with the Attic phonemic system in all respects except as regards /h/, this isolated discord would probably have inspired some attempt to invent a grapheme to correspond to that phoneme, as actually did happen in Heraclea and Tarentum.

But we will now put the following questions:

Why was a foreign graphemic system spontaneously introduced and at last officially prescribed in Athens, and why just the Ionic one? Further, why was the Ionic graphemic system accepted by the Athenians in a totally unmodified form if not for phonetic/phonemic reasons?

The Ionic alphabet had been in use in Attic for about a hundred years when it was officially sanctioned. During the last decades of the 5th century it had been used very frequently,²⁶⁵ even in official documents. It is evident, then, that this long practice was an important factor in the official acceptance of the Ionic graphemic system.

Almost certainly the reason for this spontaneous use of the Ionic graphemic system was primarily political and cultural and only secondarily phonetic. The cultural dominance of this dialect in the

²⁶⁴ For example $\acute{\epsilon}\varphi' \acute{\omicron}\delta\omicron\upsilon$, $\kappa\alpha\theta' \eta\mu\acute{\epsilon}\rho\alpha\nu$ etc. Only if we presuppose that the aspirates had changed into fricatives (rephonologization) before 400 would the orthography in such phrases fail to tell us anything about the existence or non-existence of [h]. But we have seen in the primary graphic material (Neutralizations 33a, 33b, 33d, 34a—34c, and 35a—35c; see above, pp. 220—225) that this was not the case. Consequently, the occurrence of phrases such as those just quoted indicates the existence of [h].

²⁶⁵ It has been maintained that Attic literature was never written in the OA alphabet but always in the Ionic one, for example by U. von Wilamowitz-Moellendorff, *Platon* (Berlin 1929) p. 15 "der Staat hielt sogar an der veralteten Schrift fest, obgleich sie in den Büchern schwerlich jemals angewandt war". Cf. also F. Blass, *Handb. der Altertumsw.* I² p. 302 "dagegen die attischen Tragödien sind kaum noch in dem einheimischen Alphabete aufgezeichnet worden".

The theory may seem plausible, but cf. Herzog, pp. 3—5.

archaic period endowed it with a high status, especially in Athens, and after the Persian wars the Ionians became more and more closely connected with Athens politically. It is only natural that an increasing desire should rise to use one and the same writing system in the whole of the Aegean region. It would have been meaningless, then, for the Athenians to invent a special new graphemic system in place of their old epichoric one.

For the Boeotians and the Thessalians, however, this was more natural, because those areas and dialects were more isolated in relation to the Ionian sphere, of which the cosmopolitan Athens with its Attic dialect and its close cultural and political connections was actually a part. It is only natural, then, that the Ionic alphabet came in later and only sporadically in Boeotia and Thessaly²⁶⁶ before it was finally introduced officially in the first half of the 4th century.

However, there is one possibility that the introduction of the Ionic graphemic system was based upon phonological principles, namely if there existed more than one pronunciation in the Attic population at the same time so that a conservative dialect—probably spoken in the first place by officials and learned people—could be made the basis of grapheme-phoneme correspondences. The idea of synchronically existing differences in pronunciation was touched upon above (p. 264) and will be further discussed in the following part of this chapter.

The Material of Sub-class B

It has already been established theoretically (above, pp. 243—247) that the material of *Sub-class B* should not be considered relevant to the problem of Attic pronunciation, unless it has been the subject of a very rigorous examination, and even then it should not be relied upon in the same way as that of *Sub-class A*.

However, we shall now examine some examples from the material of *Sub-class B*²⁶⁷ and we shall find that the evidence of this material

²⁶⁶ Cf. Jeffery, pp. 93 f. and 98.

²⁶⁷ As was the case with the material of *Sub-class A*, the examples discussed here have been collected and dealt with long ago. The most exhaustive index of sources is offered by Drerup.

is often contradictory to that of the primary material and (part of) the secondary material of *Sub-class A*.

1. *Onomatopoeia, Rhymes, Allusions, and Etymologies*

The traditional orthography prevents any conclusions being drawn from onomatopoeic words (cf. above, pp. 249 f.), and in rhymes, allusions, and etymologies there is always the possibility that the reference is to writing.

2. *Loan-words*

During the period when two languages enter into contact the unsettled practice of transcription may produce frequent capricious spellings. It is only then that words may be transcribed on a phonetic basis even by educated people. Later this is only the case if those people preserve a conservative pronunciation.

However, as soon as a practice of transcription has established itself, the role of phonetics in the procedure is rapidly reduced to a minimum. This is because a fixed *norm of transcription* has been established. Since this is a product of traditional orthography in general, normal transcriptions tell us nothing about pronunciation. Only instances of aberrations from the norm and/or loan-words that may have been introduced by illiterate people and thus acquired a special graphic form are of real interest. For example, early Greek loans in Latin often reveal that a more or less phonetic basis was in use when the word was originally written in Latin, e.g. *λῆροι* > *liroe* and *ἀριθμητικά* > *arismetica* (Plaut.), *μύραινα* > *murena* and *σιτάνιος* > *sitanus* (Plin.). Words such as *Pireus*, *pirata* < *πειράτης*, and *massa* < *μάζα* may have been in use in Roman popular speech for some time before they were written, i.e. they were naturalized as spoken words in Latin and only later received a Latin orthography quite independently of their Greek orthography.

The conservatism in the norm of transcription is just as natural as that of traditional orthography in general, because the former is a result of the latter. Just as people do not accept changes in the orthography of their own language, so they mechanically follow the rules of transcription. For example, if a Roman had written *Atine* or *Dimostenis* instead of *Athenae*, *Demosthenes*, or if some Greeks had written *καῖνσος* or *Λουκραιτίος* instead of *κῆνσος*, *Λου-*

κρήτιος learned people—and everybody who pretended to be learned—in Rome as well as in Athens would have entered a vigorous protest. It is obvious that most loan-words were borrowed by literate or learned persons and thus received their “correct” orthography in the new language from the beginning.

Another essential problem in the evaluation of loan-words is that of the extraction of the words borrowed. As regards Greek words in Latin, we may safely assume that in the archaic Roman period the Romans received their Greek words almost exclusively from the Dorian colonies in Italy and Sicily. Later they most probably found them in Greek books in the first place. Four groups of Romans can be supposed to have listened to the speech of an Athenian, namely seamen, merchants, soldiers, and students. The words borrowed by the first three groups of people were probably seldom written at all and thus are to be found only sporadically in Latin literature (exceptions: *pirata*, *Pireus* etc.), and the Greek words borrowed, for example, by Cicero were certainly transliterated correctly according to the principles just mentioned.

It needs no further discussion, then, to show that such traditional transcriptions are completely worthless as evidence of the pronunciation in a certain Greek region hundreds of years earlier.²⁶⁸

3. *Orthophony*

We have seen above (pp. 267 f.) that Aristotle hesitates when describing the phonetic correspondence of <Z> (provided that this is the entity referred to in the passage, which, however, is the most probable). It was also noticed that its evidence coincides in a clearly significant way with that of the primary graphic material. Consequently, we should obviously conclude that the change [zd] > [z(:)] took place in Attic ca. 350 at the latest. Incidentally, the same conclusion has been unanimously drawn by students of Greek phonology from Mhs (p. 92) onwards.

²⁶⁸ This fact was never realized by the etacists and the iotacists; cf., for example, Blass, pp. 14 f. and Drerup II 862 “Beide Parteien können also aus diesem gleichen Arsenal ihre Waffen entnehmen”.

More recently it has been realized by some scholars (cf. Sturtevant p. 52, 51 e), while it is overlooked by others; cf. Allen, *Vox Graeca*, p. 69, where the author finds himself compelled to adopt a theory of “graphic transfer” in opposite directions to account for the Latin forms *Darius*, *hypotenusa* etc. respectively.

However, Dion. Thrax p. 14,5 Uhlig, does not even mention this change but repeats the traditional theory quoted by Arist. *Metaph.* I 9, 993 a 4 (cf. also Syrianus in Arist. *Metaph.* p. 191,29 Kroll; quoted above, p. 269, n. 262).

The doctrine is carefully passed on by Dion. Hal. *Comp. Verb.* 78, p. 53,1 Raderm.

διπλᾶ δὲ τρία, τό τε ζ καὶ τὸ ξ καὶ τὸ ψ. διπλᾶ δὲ λέγουσιν αὐτὰ ἦτοι διὰ τὸ σύνθετα εἶναι, τὸ μὲν ζ διὰ τοῦ σ καὶ δ, τὸ δὲ ξ διὰ τοῦ κ καὶ σ κτλ.

Further Sext. Emp. *Adv. Mathem.* I 103

λέγουσι δὲ τινὰ τῶν συμφώνων καὶ διπλᾶ, καθάπερ το ζ ξ ψ· συνεστηκέναι γάρ φασι τὸ μὲν ζ ἐκ τοῦ σ καὶ δ, κτλ.,

written at the end of the 2nd c. A.D., shows the viability of the tradition.

There are two possible explanations of this discrepancy: either the doctrine is purely traditional learning—constantly repeated for more than a half millennium—without any real counterpart in the external world, or it describes reality. The latter alternative seems to be the most probable.²⁶⁹

There is a large number of similar cases to be found in the material of *Sub-class B*. One further example will suffice as an illustration of the phenomenon:

There is strong and clearly conclusive evidence—primary graphic (Graphemic neutralizations 4—7f., above, pp. 183—191) as well as secondary (above, pp. 263 f.)—showing that <H> corresponded to a very close front vowel, probably of i-quality, in the dialect of a great part of the Attic population already in the 5th century.

But cf. *Scholia in Dion. Thrax* p. 37,3 Hilg.

δεῖ δὲ τὸ η μὲν ἐκφωνοῦντα μηκύνειν τὸ στόμα ὡς ἐπὶ τὰ ὦτα ἐκατέρωθεν and further Dion. Hal. *Comp. Verb.* 75, p. 51,13 Raderm.

αὐτῶν δὲ τῶν μακρῶν πάλιν εὐφωνότατον μὲν τὸ α, ὅταν ἐκτείνηται· λέγεται γὰρ ἀνοιγομένου τε τοῦ στόματος ἐπὶ πλεῖστον καὶ τοῦ πνεύματος ἄνω φερομένου πρὸς τὸν οὐρανόν. δεύτερον δὲ τὸ η, διότι κάτω τε περὶ τὴν

²⁶⁹ Prescriptive statements may be supposed to be descriptive too: prescriptions not observed by anyone would be completely meaningless. The most probable explanation of the fact that Greek phonetic theory remained in its traditional form for so many centuries is to assume that there actually was an (esoteric) group of speakers pronouncing according to the rules of the grammarians.

βάσιν τῆς γλώττης ἐρείδει τὸν ἦχον ἄλλ' οὐκ ἄνω, καὶ μετρίως ἀνοιγομένου τοῦ στόματος.

There can be no doubt that Dion. Hal. describes a markedly open vowel, almost certainly of the quality [ε:], while the verb *μηκύνειν* might be used to describe any unrounded vowel.

Sometimes it is possible to trace two parallel and rivalling theories: Dion. Hal. *Comp. Verb.* 162, p. 106,12 Raderm. suggests that the *iota* in *α* was (to be) pronounced:

(παράκειται) τῷ "σὺν ἀγλαΐᾳ" εἰς τὸ ι λήγοντι τὸ "ἴδετε πορευθένθ' αὐτοῖσιν" ἀρχόμενον ἀπὸ τοῦ ι.²⁷⁰

But his contemporary Strab. XIV 648 maintains the opposite opinion:

πολλοὶ γὰρ χωρὶς τοῦ ι γράφουσι τὰς δοτικάς, καὶ ἐκβάλλουσι δὲ τὸ ἔθος φυσικὴν αἰτίαν οὐκ ἔχον.

The latter view is expressed very clearly already by Dion. Thrax p. 58,2 Uhlig

ἢ δὲ δευτέρα διὰ τῆς α διφθόγγου, προσγεγραμμένου τοῦ ι, μὴ συνεκφωνομένου δέ.

It is obvious that such discussions are reflections of the fact that there existed more than one pronunciation at the same time. Dionysius of Halicarnassus most certainly pronounced *η* as an open vowel [ε:], and it is quite probable that he observed the old pronunciation of the long diphthongs when reciting poetry, just as the musicians attached great importance to this (when singing), which is repeated *Scholia in Theodosii Canones* p. 1186,27 Bekk.

οἱ μὲν γραμματικοὶ ὡς πρὸς τὴν ἐκφώνησιν ἀποβλέποντες λέγουσι τὸ ι ἀνεκφώνητον εἶναι, ἥνικα εὐρεθῇ ἢ μετὰ τοῦ α μακροῦ ἢ μετὰ τοῦ η ἢ μετὰ τοῦ ω, οἷον τῷ Χρῡση, τῷ σοφῷ, τῷ Αἰνείᾳ, οἱ δὲ μουσικοὶ τῆς ἀκριβείας φροντίζοντες λέγουσιν, ὅτι ἐκφωνεῖται μὲν, οὐκ ἐξακούεται δέ, διὰ τὸ μέγεθος τῶν μακρῶν φωνηέντων.²⁷¹

It is obvious that educated people practiced a traditional pronunciation, especially when reciting the old poets, but evidently also in rhetoric.

²⁷⁰ It has been suggested (Sturtevant, p. 49) that "Dionysius sometimes discusses euphony on the basis of orthography rather than of the pronunciation of his day". By this suggestion Sturtevant implies that Dion. Hal. practised a conservative pronunciation when discussing euphony, for there is nothing auditory in orthography as such.

²⁷¹ Cf. the pronunciation of final *e* in French when singing.

In his work *Περὶ ἀναγνώσεως* Dion. Thrax p. 6,5 Uhlig defines reading:

ἀνάγνωσις ἐστὶ ποιημάτων ἢ συγγραμμάτων ἀδιάπτωτος προφορά.
Cf. further *Scholia in Dion. Thrax* p. 171,17 Hilg.
προφορά γοῦν ἐστὶν ἡ ἐκφώνησις, ἢ ἐστὶ γένος, εἶδος δὲ <τὸ> ποιημάτων
ἢ συγγραμμάτων, τὸ δὲ ἀδιάπτωτος ἐστὶν ἀδιάπταιστος, ὅπερ ἐστὶ
διαφορά,
and *l.c.*, p. 16,5

«Ποιημάτων» τῶν ἐμμέτρως γεγραμμένων «συγγραμμάτων» τῶν ἀμέτρως
γεγραμμένων. «ἀδιάπτωτος» ἄπταιστος «προφορά» προένεξις. Ὅρος τῆς
ἀναγνώσεως ἐστὶν οὗτος· τῶν ἐμμέτρως καὶ ἀμέτρως γεγραμμένων ἢ
ἄπταιστος προένεξις καλλίστη ἐστὶν ἀνάγνωσις. Μετὰ δὲ τὸν ὅρον τῆς
ἀναγνώσεως λοιπὸν θέλει ἡμᾶς διδάξαι, τίνα παραφυλαττόμενοι ἢ πόσα
τὴν ἀρίστην ἀνάγνωσιν ποιησόμεθα.

In his work *Περὶ γραμματικῆς* Dion. Thrax p. 5,3 Uhlig teaches
that
μέρη δὲ αὐτῆς ἐστὶν ἕξ· πρῶτον ἀνάγνωσις ἐντριβῆς κατὰ προσῳδίαν,
δεύτερον ἐξήγησις κτλ.

The first step of learning is described explicitly *Scholia in Dion. Thrax*. p. 13,11 Hilg.

Πρῶτον ἀνάγνωσις ἐντριβῆς κατὰ προσῳδίαν. Ἀμελήσαντες
τοῦ διορθοῦσθαι τὰ βιβλία ἐξ ἀρχῆς, ἐπὶ τὴν ἀνάγνωσιν τρέπονται· διό
φησι πρῶτον εἶναι μέρος τῆς γραμματικῆς τὴν ἀνάγνωσιν. «Ἐντριβῆς»
ἦτοι συνήθης καὶ τετριμμένη, ὡς ἐπὶ ὁδοῦ δημοσίας, καὶ δεδοκιμασμένη.
«Κατὰ προσῳδίαν», κατὰ τέχνην, τουτέστι κατὰ τόνους, κατὰ χρόνους,
κατὰ πνεύματα, κατὰ πάθη. Ἔστιν οὖν ἀνάγνωσις ἢ συντετριμμένη καὶ
συνήθης καὶ δεδοκιμασμένη προφορά τῶν ἀναγινωσκομένων κατὰ τέχνην·
ἢ γὰρ παρὰ τέχνην οὐκ ἀνάγνωσις, ἀλλ' ἀγνωσία.

Scholia in Dion. Thrax. p. 12,6 Hilg. we are told how the youths
were taught to read without mistakes by means of using "corrected"

books, i.e. texts furnished with prosodic markings:
πρὸ μὲν γὰρ τοῦ ἄρξασθαι τὸν νέον ἀναγινώσκειν, ὁ διορθωτὴς λαμβάνων
τὸ βιβλίον διορθοῦτο αὐτό, ἵνα μὴ ἐπταισμένον αὐτὸ ἀναγνοῦς ὁ νέος εἰς
κακὴν ἕξιν ἐμπέσῃ· μετὰ δὲ ταῦτα λαβὼν ὁ νέος τὸ βιβλίον διορθωθέν,
ἀπ' αὐτοῦ πρὸς τὸν ἀναγινωσκτικὸν τὸν ὀφείλοντα αὐτὸν διδάσκειν ἀναγινώσκειν
κατὰ τὴν διόρθωσιν τοῦ διορθωτοῦ.

It is evident, then, that one of the main purposes of education was
to convey a perfect skill in exact reading and pronunciation.

It is quite natural that a traditional pronunciation was observed

in the recitation of poetry and in the reading of rhetorical prose,
because the metre and the stylistic qualities presupposed the original
pronunciation.

The existence of different synchronic pronunciations is demon-
strated even for the late classical period by Plato *Crat.* 418 b—d;
cf. above, pp. 263 f.) and there is good reason to suppose that already
then a conservative pronunciation was practised by educated people
and taught at school.²⁷² Further evidence in support of this theory
is supplied by Arist. *Metaph.* I 9,993 a 4.

It is rather probable, then, that people were already accustomed
to an archaic pronunciation of literary texts in late classical times,
and that the great classical literature was recited in the same way
by later (imitating) generations.²⁷³

It is obvious that the great amount of evidence in support of a
conservative pronunciation found in the *Sub-class B* material should
not be looked upon as referring to popular speech, either contempo-
rary or that of some earlier period. Evidence bearing upon the

²⁷² The passage reveals a clear depreciation of the pronunciation [i:], as being
practised above all by women.

Now, if the i-pronunciation was prevalent at home, in the γυναικωνίτις, we
should expect that the boys had that pronunciation when coming to the
γραμματικὸς and that it was removed by him through training.

This theory will explain the striking documents found in the Academy of
Plato (cf. Var. 17, 16—19) in a natural way: these iotacistic writings were
produced by schoolboys who were just beginning to learn to write. Such
phonetically caused wrong spellings are familiar to any primary school
teacher.

Furthermore, it should be noticed that the pupils of the gymnasia belonged
mainly to the upper classes (cf. above, p. 31, n. 23), although there may have
been some boys of the middle classes too in those schools.

Perhaps it might seem curious that women could have a special dialect of
their own. Considering the fact, however, that the women in ancient Greece
were rather isolated at home they constituted a separate group in society
and thus could very well be supposed to have had a special dialect just like
other social groups.

²⁷³ Cf. Papadém., p. 192 "Il n'y a aucune raison qui nous oblige à croire que
ceux qui, de prime abord, tenaient beaucoup à conserver l'ancienne tradition
et la prononciation infaillible dans la lecture des anciens poètes et prosateurs,
ainsi que le dit formellement Denys de Thrace, ils ne pouvaient connaître et
conserver la prononciation classique."

popular dialect²⁷⁴ of a certain period and region is found in primary graphic material from that period and region and in contemporary secondary material of the category *Sub-class A*²⁷⁵, not from the unchanging doctrine of (late) grammarians.

Sometimes, however, even those supervisors of "correct" pronunciation make remarks revealing phenomena of popular speech, for example, when Dion. Thrax speaks about the mute *iota* in α, η, ω , while Dion. Hal. suggests its being pronounced (see above, p. 275.²⁷⁶ Cf. also, for example, the expository discussion *Scholia in Dion. Thrax* p. 498,3 Hilg.

Βραχέα δύο, ε και ο. Δῆλον ὅτι οἱ παλαιοὶ ταῦτα παρατρέχοντες ἐφθέγγοντο. Ἐπὶ δὲ τούτων Ἡρωδιανὸς καὶ ὁ τούτου πατήρ Ἀπολλώνιος ἐζήτησαν, τί τίνος βραχύτερον

and

Τούτων μακρὰ μὲν ἐστὶ δύο. Πόθεν ἔγνωσται τὰ μὲν μακρὰ ὄντα, τὰ δὲ βραχέα, τὰ δὲ δίχρονα; Ῥητέον δὲ ὅτι τὸ μακρὸν πρὸς τί ἐστὶ μακρόν, καὶ τὸ βραχὺ πρὸς τί ἐστὶ βραχύ; οὐδὲν γὰρ ἔστιν, ὅπερ καθ' αὐτὸ μακρόν ἐστὶν ἢ βραχύ, ἀλλὰ πρὸς ἕτερον. Ἐπεὶ τοίνυν πολλάκις φαίνεται τὰ μακρὰ ἀναλυόμενα εἰς δύο βραχέα, ὡς τὸ σῶς σόος, <π 131> εἴφ' ὅτι οἱ σόος εἰμί, καὶ πάλιν τὸ δῆλον δέελον, ὡς τὸ <Κ 466> δέελον δ' ἐπὶ σῆμά τ' ἔχευε, διὰ τοῦτο τὰ μὲν μακρά, τὰ δὲ βραχέα, οὐ τῷ τύπῳ τοῦ σχήματος, ἀλλὰ τῷ χρόνῳ τῆς φωνῆς, ὡς ἐν διπλασίονι χρόνῳ παρὰ τοῖς παλαιοῖς τῶν βραχέων ἐκφωνούμενα.²⁷⁷

²⁷⁴ The popular dialect might actually be denoted adequately by the Modern Greek term "dimotiki", and could be referred to as "Attic dimotiki", deriving its origin from the 5th century B.C.

²⁷⁵ Evidence in favour of a popular dialect is found continuously in all periods from the 6th century B.C. throughout antiquity. The occurrence of the two kinds of evidence parallel with each other and equally cogent proves the existence of two parallel dialects. For example, one finds forms such as those quoted by Strohschein, pp. 177—186, written in different parts of the Greek world and at times when the grammarians unhesitatingly maintained the diphthongal pronunciation of $\alpha\iota$. It can be observed that the doctrine of the grammarians is very uniform, while the evidence of the popular dialect differs considerably in different parts of the Greek world.

²⁷⁶ The presence of two theories about the pronunciation of α, η, ω is probably due to the fact that the second element of these diphthongs was not essential to the metre and consequently they may have been pronounced for some time as monophthongs also in recitation (i.e. not only in everyday speech) when the grammarians set about to work out their theories.

²⁷⁷ The phrases φθέγγεσθαι, χρόνος τῆς φωνῆς and ἐκφωνεῖν certainly refer to

Such discussions would of course not have been possible if there had existed a natural phonemic distinction between long and short vowels.

The disappearance of the phonemic opposition $/V_1/ : /V_1:/$, displayed by frequent and widespread graphemic neutralizations (cf. above, pp. 218 f.), is reflected and verified by the prescriptive formulations and the reference to οἱ παλαιοὶ by Dionysius.

In the 2nd c. A.D. Hermogenes, *Id.* I 225, p. 248,4 Rabe suggests that $\epsilon\iota$ and ι do not represent the same sound:

αἱ ταῖς μακραῖς τε καὶ διφθόγγοις πλεονάζουσιν καὶ αἱ τὰ τελευταῖα ἐν ταύταις ἔχουσιν, πλὴν τῆς $\epsilon\iota$ διφθόγγου· καὶ εἰ καθ' αὐτὸ δὲ τὸ ι τιθοῖτο, ἥμισυ σεμνὴν ποιεῖ τὴν λέξιν πλεονάσαν, συστέλλει γὰρ μᾶλλον καὶ σεσηρῆναι ποιεῖ, διογκοῖ δὲ οὐδαμῶς τὸ στόμα.

Although the double pronunciation might have been discussed theoretically in Athens already in the 4th century (cf. Plat. *Crat.* 418 b—d and Arist. *Metaph.* I 9,993 a 4) it is evident that the definite doctrine of archaic pronunciation was laid down by Alexandrian grammarians in the 3rd and 2nd centuries B.C. in order to make a correct recitation of poetry (and prose) possible. In that period the markings of accent, quantity, and spiritus were invented, which proves that the corresponding phonetic categories were observed in reading and recitation, but not always in everyday speech.²⁷⁸

The conservative orthography of Greek had a counterpart in speech. The adherence to the classical Attic pronunciation was the outcome of atticism applied to phonetics and phonology. It was parallel to the endeavour to preserve and/or revive the classical Attic morphology, syntax, and lexicon.

Whether the conservative pronunciation was practised by educated people even in non-literary speech can hardly be decided. It is quite possible, however, that learned people took pains to speak "High Greek", just as educated persons nowadays speak High German or Standard English.

There is clear evidence showing that this conservative pro-

speech, although even verbs such as λέγειν may sometimes be shown to refer to writing.

²⁷⁸ The main reason for the invention of these markings cannot have been the needs of foreign students of Greek for guidance, because the system of marking would then not have become generally accepted in the Greek-speaking world.

nunciation was preserved, at least in parts, not only throughout antiquity but also during the main part of the Byzantine era.

Thus, as late as ca. 400 (?) A.D. (Ps.-)Theodos. Alex. p. 4,14 Göttling repeats that η is an open vowel, and that υ (and $\omicron$) were rounded vowels:

καὶ ὅτι τῶν φωνηέντων ἃ μὲν κεχρηγόντων τῶν χειλέων λέγομεν, ὡς τὸ η , ἃ δὲ μύοντες τὰ χεῖλη λέγομεν, ὡς τὸ υ , $\omicron$.

As late as in the ninth century, when the Glagolitic alphabet was invented, the Greek $\langle X \rangle$ was used to represent the Slavic aspirate $/k^h/$, while a new grapheme was created for the representation of the Slavic velar fricative.²⁷⁹

This alphabet originated from the learned ecclesiastics of Constantinople, whose traditional aspirate pronunciation of $\varphi \theta \chi$ is thus indicated by the use of $\langle X \rangle$.

To summarize, it may be established that on the one hand there is sufficient evidence for a conservative pronunciation lasting throughout antiquity, while on the other hand there is equally strong evidence of a popular "dimotiki"²⁸⁰ pronunciation of Attic existing beside the traditional one from the 5th century onwards.

This fact was discerned already early in the nineteenth century by Liskovius, Pennington, Telfy, Zacher, and others.²⁸¹ They virtually displayed that the entire animated dispute between etacists and iotacists had been nothing but a search for a phantom, viz. a uniform pronunciation of Attic and/or Ancient Greek. Instead of an objective evaluation of both kinds of evidence, both parties tried to explain away the opposite side.

These old mistakes could have been dispatched as pure curiosities today, had not the etacistic school delivered a definitive attack on its opponents at the end of the nineteenth century, gradually putting an end to the discussion about 1910. The polemic handbook *Die Aussprache des Griechischen* by Blass was a great success and its teachings were generally accepted.

As was noticed above, p. 15 little has been done in this field of research from the beginning of the twentieth century up to today. However, some of the few scholars who have concerned themselves

²⁷⁹ Cf. Sturtevant, p. 84 f.

²⁸⁰ Cf. above, p. 278, n. 274.

²⁸¹ The works by these scholars are reported by Drerup II 604 ff., 718 ff., 905 ff., and 925 ff.

with the problem have rediscovered the phenomenon of parallel pronunciations of Greek.²⁸²

This phenomenon, incidentally, is of course not peculiar to Greek. As soon as there is a consciousness of tradition among the users of a language there is always the possibility of purism and conservatism, not only in morphology, lexicon, and syntax but also in phonology. If, then, the linguistic conservatism of a group of users of a language is strong enough, this group may preserve an old pronunciation and, consequently, establish this as a subdialect, while the pronunciation of other users of the language is changing.

For example, in late Middle French the change $[w\epsilon] > [wa]$ was accomplished in popular speech, but the educated classes and the grammarians repudiated this pronunciation as "vulgar" and "corrupt". Not until the upheaval of the Revolution had destroyed the old tradition about 300 years later was the pronunciation of the majority accepted.²⁸³

Even stronger is the tradition of classical Arabic, which is still pronounced today roughly as it was about 1000 years ago and, consequently, differs markedly from the modern Arabic dialects in pronunciation as well as in other respects.

²⁸² Cf. Sturtevant, p. 82, who only hints on the subject.

Robins, p. 38 is more explicit: "One task that several grammarians of this (the Alexandrian) period assumed was the wholly mistaken one of preserving the Greek language from decadence; they felt it their duty to find out how Greek *should* be written and spoken, and so fix it in that form, unchanging"; and further *l.c.*, p. 39 "Grammar had a practical purpose, to preserve good literary Greek (Ἑλληνισμός) against decay from within and contamination from without."

²⁸³ Cf. Pope, pp. 196 f.

Chapter 8

THE PHONEMIC SYSTEM OF THE ATTIC
DIALECT 400—340 B.C.

Preliminaries

DELIMITATIONS

Since the purpose of the present work is to reconstruct the phonemic system of the Attic dialect spoken by the majority of its users in the period 400—340, all statements will refer to this entity, unless otherwise marked.²⁸⁴ Phonemic statements about the dialect of a minority of the population in this period will be made occasionally.

The analysis will be *phonemic* in a strict sense,²⁸⁵ i.e. it aims at an account of the phonemes alone. This means that it will be concentrated on distinctiveness, and not comprise other features, e.g. demarcative, redundant, etc.

Optional phenomena such as elision, crasis, etc. will not be dealt with.

The distribution and frequency of the phonemes will not be described explicitly. Allophonic variation will only be accounted for occasionally.

These limitations of description are mainly due to the fact that the present investigation does not comprise material that may provide evidence for such explicit descriptions, for example material with reference to elision and crasis.

THEORY

In the phonetic evaluation of the orthographic data and of the secondary material (Chapters 6—7), the synchronic aspect was the

²⁸⁴ In Chapters 6—7 the question whether a certain pronunciation was that of the majority or not, was not essential. In those chapters the task was to find out what phonetic patterns existed in the language during the period focused on.

²⁸⁵ Cf. Jakobson, *Sel. Writ.*, pp. 467—469.

basic one, while the diachronic aspect came in when determining what kinds of phonetic changes could be expected and at what point of time they were accomplished (cf. *Principle 2*, p. 165 and note 83).

In the phonemic analysis of the phonetic data gained in Chapters 6—7 (which, of course, is synchronic as such) diachrony is even more important than in the “transformation” of the orthographic data into phonetic data in those chapters. The knowledge about the later development of the dialect investigated is decisive for the phonemic conclusions drawn.²⁸⁶

The part played by the diachronic aspect in the analysis of a phonemic system of a language at a given historical stage may be formulated in the following principle, called *Principle 5*:

Principle 5

The more reliable our knowledge is of the development of a phonemic system during periods later than the one investigated, the more positive phonemic conclusions may be drawn from orthographic data from that period.

The analysis will be based essentially on the theory of phonetic change laid down by Martinet.²⁸⁷ The phonetic (and possibly phonem-

²⁸⁶ In linguistic research concerning historical stages in a language synchrony and diachrony cannot, and should not, be kept apart. “The two are not independent, and any historical statement contains, avowedly or otherwise, at least two synchronic statements—one for each of two or more stages—already” (Hoenigswald, p. 3, n. 5). And, likewise, synchrony must draw information from diachrony. Thus, Leumann’s (*Phonologie*, p. 122) essentially correct criticism of Brandenstein’s monophonemic interpretation of *αι, οι* is inadequately formulated: “Die prinzipiell auf Synchronie zu begründende Phonembestimmung (wird hier) ex posteriori von späteren unvorhersehbaren Lautwandeln her vorgenommen.” Sound changes that are known to have taken place are not “unpredictable”. If we have some knowledge about stages preceding and following the one investigated we are of course allowed and obliged to make use of that information.

Cf. McIntosh, p. 27: “Whatever we may claim to know is derived indirectly; by making a study of written material and drawing certain conclusions from it, and by studying still surviving forms of spoken English and then drawing conclusions about the earlier stages by a process of extrapolation.” Of course, the last statement is equally applicable to Greek.

²⁸⁷ *Économie*, pp. 39—152.

ic) changes are looked upon as taking place in relation to a synchronic system, which means that the phonetic changes are studied, not one by one, but comprehensively with regard to the relations between the phonemes within the system at a given point of time. This combination of diachrony and synchrony is essential to the understanding of the chronology of the phonemic changes and the relations between changes taking place in the phonemic system.²⁸⁸

When deciding whether a certain phonemic change has taken place or not, a principle underlying the following example by Hoenigswald (p. 73) will constitute the theoretical basis: "The absolute datum that *k* (in *knot*) was or became very similar to Ø is less relevant than the relative datum that the phone representing /k/ in one subdialect was *more* similar, in the other (surviving) subdialect, to Ø than to the phone representing /k/ there."

This theory should be discussed thoroughly. There is no doubt that phonemic change is, and must be, sudden: either there exists an opposition between two phones or there does not.

How could it come about that from one day to another²⁸⁹ a given sound disappeared or merged with some other sound? Or shall we assume that phonemic change is principally sudden but takes place step by step at intervals? Neither seems very probable.

In order to realize the nature of phonetic (and phonemic) change I think we should look upon the dialect of a population as being spoken by individuals. If we consider the dialect of *one* person diachronically over a period of time in which we know that a certain phonetic change has taken place in the dialect, for example Attic [e:] > [i:], we will have to answer this question: Is it possible for a person who has once, as a child, had the phonemic distinction /e:/ : /i:/ impressed on his mind as a code, to erase this impression so that he forgets it suddenly and totally?

²⁸⁸ Cf. Jakobson, *Sel. Writ.*, p. 2: "This antinomy between synchronic and diachronic linguistic studies should be overcome by a transformation of historical phonetics into the history of the phonemic system. In other words, phonetic changes must be analyzed in relation to the phonemic system which undergoes these mutations. For instance, if the order within a linguistic system is disturbed, there follows a cycle of sound changes aiming at its renewed stabilization."

²⁸⁹ Such a high degree of suddenness must actually be assumed, because as soon as we posit some period of time for the accomplishment of the change there will be something gradual in it.

This seems extremely improbable. But a gradual displacement of the *phonetic quality* of original [e:], as pronounced by that person, towards the final quality [i:], is possible and actually very natural. We may suppose, then, that the person follows the general tendency in the population to pronounce the sound [e:] more and more like [i:]. He may actually manifest his phoneme /e:/ phonetically more like [i:] than [e:]. Nevertheless, he does not fail to perceive the sound as belonging to the category /e:/, which has been once and for all integrated in his linguistic code.

Now, suppose that the person is a mother and that she has a child, who learns the language from her speech. She herself is always aware of the phonemic opposition /e:/ : /i:/, although she (unconsciously) pronounces /e:/ with an exceedingly small phonetic difference from /i:/. The child never perceives the distinction and, consequently, never impresses it on its mind: in the phonemic system of the child, the phonemic opposition /e:/ : /i:/ that exists in that of its mother is not found. The border-line between the earlier phonemic system and the later one goes between the generations.

The development described is taking place in all—or almost all²⁹⁰—families in the population.

We may now draw the following conclusions:

1. *Phonemic change is sudden* and, consequently, cannot take place in the phonemic system of an individual.
2. *Phonemic change develops gradually in the language as a whole*, i.e. it will comprise more and more of its speakers.

The new phonemic system propagates in the population as time goes on and new parents pass it on to their children.

It is evident, then, that Hoenigswald's example quoted above (p. 284) should be interpreted as referring to a population. This

²⁹⁰ The phonemic change may be inhibited in families where the parents are linguistically conscious and take pains not to pronounce [e:] almost like an [i:] and even correct and censure the children if they tend to adopt the new phonemic system (they may listen to other people and so be influenced). Through such superintendence the children will not follow the general development of the dialect, by deviating from the phonemic system of their parents, and, having once got the opposition /e:/ : /i:/ impressed on their minds they might pass it on to the next generation. In this way a phonemic system may be preserved for centuries. Cf. above pp. 273—281.

means that the principle is implicitly statistical; it naturally gives rise to the following questions:

What was, at a certain point of time, the relative number of speakers of the new and the earlier dialects? At what time had the new dialect won over a majority of the population?

The latter question, however difficult it may be, should be answered. Of course the decision whether a certain phonemic change had, at a given point of time, affected the dialect of the majority or not, must always be more or less conjectural (cf. above, p. 163, n. 81). However, this inevitable difficulty should not deter historical phonologists from making such statements.²⁹¹

Phonemic Analysis

THE VOWEL SYSTEM

1 Front vowels

The strong evidence of a very narrow quality of the short /e/ led to the conclusion that this sound was about to become identical with /i/ (above, p. 178).

However, for diachronic reasons it cannot be concluded that this phonetic alteration resulted in a phonemic change: It is well-known that MG /ɛ/ is a descendant of Attic /e/ (grapheme <E>) and /ɛ(:)/ (grapheme <AI>). Now, if the Attic /e/ had actually merged with /i/ into a new phoneme /i/, we must assume that this phoneme split again later into /e/ and /i/, because otherwise the MG /ɛ/ would never have originated. However, such a split is not possible.

²⁹¹ In the study of the phonetic development of Ancient Greek (and in the study of Ancient Greek in general) the dialect of the upper classes has traditionally been focused on almost exclusively. Once the scholar discovered that there was evidence that a certain phonetic change had taken place this pronunciation was classed as "vulgar" and it was not questioned whether this pronunciation was that of the majority of the population or not. Only when the change could be proved to have penetrated into the upper classes was it accepted as being accomplished.

But such a description is inadequate. The subdialects spoken by minor groups of the population (for example, by the group speaking a conservative dialect) should be explicitly described as such and not as substitutes for the language as a whole, especially not if the dialect of the majority is the one that is going to survive.

Consequently, we may take for granted that the phonological opposition /i/ : /e/ was preserved.²⁹²

There is wide-spread and decisive evidence²⁹³ to show that the tentative phoneme /e:/ had merged with /i:/ . The change had thus produced a new phoneme /i:/,²⁹⁴ which most certainly was part of the dialect of the majority.

This phoneme had an open allophone /_V/.²⁹⁵

The strong evidence of an i-quality in the sound corresponding to <H> that is found in the primary material is supported by the important evidence of the secondary material.²⁹⁶ Consequently, this secondary evidence entitles us to draw another conclusion than the one preliminarily arrived at above (p. 186; cf. also p. 191) on the basis of the primary material alone:

The (tentative) phoneme /ɛ:/ had changed into /e:/ and further into /i:/ in the dialect of the majority of the Attic population in the period 400—340.

However, the evidence of a close e-quality is also very strong,²⁹⁷

²⁹² This is an illustrative example of the significance of *Principle 5* (above, p. 283): if we had not possessed a criterion in MG, the conclusion that /e/ and /i/ had merged would be natural.

²⁹³ See above, pp. 175—178 and further pp. 251 (Arist. *Rhet.* III 9,1410 a 33) and 255 f. The evidence in support of an e-quality (pp. 254 f.) is insignificant and may refer to the conservative dialect of the upper classes.

²⁹⁴ This new phoneme must have originated before the equalization of vowel length.

The change is quite natural from a phonological point of view: Ruipérez, *Word* 12 (1956) 74 correctly observes that the frequency of the original /i:/ was so low that there could almost be said to exist a "hole in the pattern" in this position. This implies that the functional load of /i:/ was very insignificant. (Cf. Martinet, *Économie*, pp. 54 f.). But curiously enough Ruipérez (*l.c.*, p. 75) then maintains that the change /e:/ > /i:/ did not take place until shortly before 100 B.C. Cf. Katičić, *Živa Antika* 8 (1958) 290 f.

²⁹⁵ When the opposition /V₁/ : /V₁/ disappeared (through the equalization of vowel length) this open allophone must have been more similar to /i/ than to /e/, because otherwise it would have merged with the latter phoneme in the later phonemic system. For the problem of vowel length see below, p. 293.

²⁹⁶ See above, pp. 184—191, and further pp. 250 f., 255 f., and 264.

²⁹⁷ See above, pp. 183 f. and 255.

There is no doubt that the change /ɛ:/ > /e:/ had been accomplished in the dialect of the majority a long time before the period 400—340.

which shows that this was the pronunciation of a considerable part of the population.

We will now consider the development of the front diphthongs of the earlier system.

There is no doubt that the sounds corresponding to <EI> and <HI> became identical in the 5th century.²⁹⁸ This is to be seen in the changing orthography during the 4th century and in the graphemic neutralizations 7a—7e. Seeing that <EI> corresponds to an i-sound in the period 400—340 it may be concluded that this was also true of <HI>.

This conclusion applies to the dialect of the majority.

On the basis of the clear evidence of the graphemic neutralizations 9—11 (pp. 191—199) it was concluded that the original diphthong /ai/ had been monophthongized in the period under discussion.²⁹⁹ The resulting vowel may have occupied the position /ɛ:/.

This conclusion is further supported by phonological evidence. The development /e:/ > /i:/, /ɛ:/ > /e:/ > /i:/, and /ɛ:i/ > (/ɛ:/ > /e:/ > /i:/ produced a hole in the pattern. The vast space between /e/³⁰⁰ and /a(:)/ could not, of course, remain vacant; more exactly, there could never arise such a vast gap in the pattern.

Consequently, as soon as the original /ɛ:/ (<H>) began to advance towards the position /e:/ this produced an attraction on /ai/,³⁰¹ resulting in a monophthongization into /æ:/. When /e:/ (<H>) continued on its way into /i:/ the attraction on /æ:/ resulted in its shift into the position /ɛ:/.

The mechanism may be described as a "chain of attraction": It was stated above (p. 287, n. 294) that the low frequency of the phoneme /i:/ caused an attraction on its adjacent phoneme /e:/, which soon merged with it. This shift /e:/ > /i:/ then caused a

²⁹⁸ See above, pp. 187—191.

²⁹⁹ There is secondary evidence both in support of a preserved diphthongal, and of a monophthongal, pronunciation: pp. 250 (Aristoph. *Pax* 771—772) and 256.

³⁰⁰ We have stated above, p. 286 that the short vowel /e/ had a very narrow quality.

³⁰¹ Cf. Martinet, *Économie*, pp. 47—51 and 59—62.

However, the monophthongization may have been spontaneous and thus may have caused a pressure on the phoneme corresponding to <H>. Cf. below, pp. 297—301.

further attraction on /ɛ:/, which was narrowed into /e:/. As was just stated this change may in turn have produced an attraction on /ai/.

However, this theory of attraction may only partly explain the change of /ɛ:/ (grapheme <H>) into /e:/ and definitely not the subsequent change of that sound into /i:/. The problem of these changes will be discussed further below (pp. 297—299).

The monophthongization of /ai/ involved that the allophone of the short /i/ that occurred, in the earlier system, //a/_ (i.e. in the diphthong /ai/), coalesced through monophthongization with the allophone of /a/ that occurred /_i/. This implied that the phonemes /i/ and /a/ had their frequencies reduced.³⁰² As regards /i/, its frequency was exceptionally much reduced because all diphthongs with an i-allophone as a second component were monophthongized, some of the very early.³⁰³

The evidence of a monophthongization of /yi/ that is gained from the primary graphic material is clear and decisive.³⁰⁴ The change /yi/ > /y:/ was certainly accomplished in the dialect of the majority very early, probably in the 6th century. This can be seen from the fact that there was a further change /y(:)/ > /i(:)/, beginning as early as the 6th century,³⁰⁵ which, of course, presupposes the /yi/ had been monophthongized.

These early changes prove that the changes /ui/ > /yi/ and /u(:)/ > /y(:)/ must have taken place soon after the *terminus post quem*, i.e. soon after 700.³⁰⁶

As the change /ui/ > /yi/ caused a marked reduction of the minimum of contrast between the sounds constituting the diphthong, the monophthongization was to be expected.

Since the change /y(:)/ > /i(:)/ is traced in the graphic material already in the 6th century and the frequency of Neutralization 12 (and 13c—13f) increases, during the following centuries, we have to

³⁰² I.e. the change was a partial dephonologization.

³⁰³ For the general process of monophthongization and the part this may be supposed to have played in the development of the vowel system as a whole cf. below, pp. 295—299.

³⁰⁴ Above, p. 201.

³⁰⁵ Above, p. 200.

³⁰⁶ Bartoněk, *Long-vowels*, p. 114 correctly states that the establishment of the graphemic sequences <EY> and <AY> as corresponding to the diphthongs /eu/, /au/ proves the original u-pronunciation of the sound corresponding to <Y>. As soon as this grapheme-phoneme correspondence had been established, the change /u(:)/ > /y(:)/ may have taken place.

conclude that the sound was very similar to, or identical with, /i(:)/ in the period 400—340.

It was suggested above (p. 200) that a somewhat labial pronunciation /_V/ may have lasted as late as then and even longer. This would mean that the opposition /i(:)/ : /y(:)/ was preserved; it was only neutralized /_C/.

Now, the crucial question is whether the opposition was preserved by the majority of the speakers or not.

Considering the high frequency of Neutralization 12, it seems reasonable to conclude that this was not the case. It is highly probable, however, that a large part of the population had a phoneme /y(:)/ in their dialect in the period under discussion.

The evidence of the graphemic neutralizations 15 and 16a—16g in combination with the decisive secondary evidence proves that the diphthong /oi/ had been monophthongized.³⁰⁷ Since the passage Thuc. 2,54,2 proves a monophthongal pronunciation for the time ca. 430 there is no doubt that the majority of the speakers had the new phoneme in their dialect during the period 400—340.

It is very difficult to decide what was the phonetic quality of the new monophthong. The graphic material primarily indicates a central quality, possibly /ə:/, while the passage in Thuc. clearly indicates a close front quality, probably /y:/. Although this passage stands alone, its decisive evidence makes the latter alternative seem most probable, especially when the coming development (MG /i/) is considered.

However, having stated the existence of the new phoneme, we need not concern ourselves with its phonetic quality further, because this problem is not a phonemic one.

2 Central vowel

The phoneme corresponding to <A> was probably a central vowel /a(:)/. Only the insignificant evidence of the incomplete graphemic neutralizations 28a—28b (above, pp. 214 f.) might be said to indicate

³⁰⁷ See above, pp. 202—205 and 253.

The contrary evidence Plat. *Crat.* 420 b—c is not conclusive; besides it may very well refer to the conservative dialect (above, p. 257).

a back quality /a:/ in the long a-vowel, but of course this scanty evidence is not sufficient for such a conclusion.

The original diphthong /a:i/ had merged with the phoneme /a:/.³⁰⁸

3 Back vowels

There is no reason to doubt that the vowel corresponding to <OY> had the quality /u:/. The evidence hinting at a more open quality /o:/ as late as the 4th century is inconclusive,³⁰⁹ while on the other hand, there is decisive evidence of a very early shift /o:/ > /u:/. There is clear phonological evidence to show this change. It was established above (p. 289) that the vowel /y(:)/ (grapheme <Y>) of the earlier system—which, as was also stated, must have arisen very early through a change /u(:)/ > /y(:)/—was delabialized so as to merge with /i(:)/, and that this change began already in the 6th century.

These successive changes /u(:)/ > /y(:)/ > /i(:)/ produced an attraction on the adjacent phoneme /o(:)/, which set in as soon as /u(:)/ (grapheme <Y>) began to advance forward.

It may be supposed that there existed a latent attraction on the original /u(:)/ from the vacant central position between that phoneme and /i(:)/. However, this attracting force was not itself sufficient to initiate the change /u(:)/ > /y(:)/. It did not start until a pressure originated on the other side, i.e. from the bottom of the vowel triangle, produced by the rise of the new phoneme /a:/, resulting from the second compensatory lengthening.³¹⁰

The attraction probably affected the short vowel /o/ as well as /o:/. However, since there was no short open vowel /ɔ/ between /a/ and /o/, there could not exist a complete chain of pressure among the short vowels. However, the short /u/ (grapheme <Y>) accompanied the long counterpart in the shift into /y(:)/. This may be explained as a result of the phonetic connection between long and short vowels. Only the lack of pressure on /o/ prevented this short

³⁰⁸ Cf. above, pp. 191 f.

³⁰⁹ Neutralizations 23 and 27 a—27 b, pp. 209 f. and 213 f.; and further pp. 256 f.

³¹⁰ This has been pointed out by Lasso de la Vega, *Emerita* 24 (1956) 275.

According to Bartoněk, *Long-vowels*, p. 68 this change may be assumed to have taken place in the 9th century.

vowel from accompanying its long counterpart into /u/; the attraction from /u/ alone was not sufficient.

Such phonetic connection between long and short vowels may probably also explain the tendency of /e/ to accompany /e:/ in the change into /i:/ (cf. above, p. 286). But just as /o/ could not follow /o:/ because of the failing pressure, so /e/ was preserved because there was no short vowel /ε/ to press it into /i/.

It is very unlikely that a hole in the pattern in the position /u(:)/ remained for a long period.³¹¹

It was concluded above (pp. 211 f. and 213) that the sounds corresponding to <Ω> and <Ο> had merged into one sound of mid-quality, possibly /o(:)/. However, the evidence of the graphemic neutralizations 28a—28b (pp. 214 f.), the material of which is not completely accounted for in the collection of data, constitutes important evidence to the contrary. Just because the material could not be completely accounted for, it is safe to conclude that the phonetic quality of the sound corresponding to <Ω> was preserved and thus that the phonological opposition /o/ : /o/ remained intact.

It is to be seen from the primary graphic material³¹² that the diphthong /o:i/ had been monophthongized into /o:/.

4 Diphthongs

It was concluded above³¹³ that the second component of the diphthong /eu/ had changed into [Φ]/[β], while a corresponding change

³¹¹ According to Ruipérez, *Word* 12 (1956) 73 f. the change /u(:)/ > /y(:)/ took place early, i.e. soon after the introduction of the alphabet, while the change /o:/ > /u:/ is thought not to have been accomplished until ca. 350.

This idea is rightly rejected by Lasso de la Vega, *Emerita*, 24 (1956) 279 f. It is evident that the changes discussed should be looked upon as a series of shifts. The development is parallel to the Swedish series of changes in the Middle Ages among the back vowels, which was also caused by a pressure: /a:/ > /o:/, /o:/ > /u:/, /u:/ > /y:/.

³¹² See Neutralization 29a, above, pp. 215 f.

³¹³ See Neutralizations 20a—20e and 22a, pp. 205—209.

had just begun in the diphthong /au/. There is no evidence whatever to show a change also in /ε:u/³¹⁴ and /o:u/.³¹⁵

To decide whether the new sound should be described as a phoneme or not, we must consider the conclusion drawn about the sounds corresponding to <Φ> and <Β>:³¹⁶ /p^h/ and /b/ had not yet changed into fricatives in the 4th century.

Consequently, if the changes [eu] > [eΦ]/[eβ] and [au] > [aΦ]/[aβ] had already been accomplished, these sounds would occur only as [e] and [a]. This very limited distribution is reason enough not to

describe these sounds as a phoneme. Besides, it cannot be maintained that the change into a consonantal character had actually been finished. It is reasonable to suppose that these phones were more like semi-vowels, i.e. like [w], than fricative consonants.

The change [u] > [w] should then be described as being allophonic, not phonemic. It may be supposed on phonological grounds to have been general in diphthongs.

Consequently, the phoneme /u/ had one allophone [w] //V/_, while the allophone [u] occurred elsewhere.

5 Vowel length

It was concluded above (p. 219) that there was a development towards the disappearance of the opposition /V₁/ : /V₁:/ going on for one and a half centuries, until it was accomplished about 350.

Because the change is traced as early as the 6th century (see table, p. 219) it is probable that in the dialect of more than half the Attic population vowel length had been equalized ca. 350.³¹⁷

³¹⁴ There is no evidence to show that the first component of this diphthong shared the general development of (tentative) /ε:/ (Vars. 88—89, above, pp. 115 f. lack evidence). Ca. 300 the orthographic norm changed into <ΕΥ> (cf. Mhs, pp. 171 f.), which certainly was a result of the disappearance of the temporal augment. Since /ε:u/ occurred only in that morpheme, no special phonetic development must be assumed to account for its merger with /eu/.

³¹⁵ There is good reason to doubt that such a diphthong existed in Attic at all. Crasis forms, e.g. πρῶτοδᾶν (cf. Schwyz. *GG* I 203), are not conclusive.

³¹⁶ See Neutralizations 33a—33h, above, pp. 220 f.

³¹⁷ After this change there no longer existed any complementary allophonic variation in the phoneme /i/; the structure described above, p. 186, which

6 Accent

Since Ancient Greek accent was to a certain extent related to length it should be dealt with here.

As a result of the equalization of vowel length, the contonation³¹⁸ could no longer be finished within one syllable but always had to comprise two syllables. This means that the circumflex allophone of the phoneme /ʔ/, which in the earlier system occurred /_:/, had disappeared and, consequently, that the accent can no longer be described in mora terms.

The phonetic quality of the accent may have continued to be preferably pitch. However, after the disappearance of the circumflex allophone the way was open for a gradual transition from an accent predominated by pitch towards one characterized by stress.³¹⁹

SURVEY OF THE VOWEL SYSTEM OF ATTIC
400—340 B.C.

Phonemes

/i/ /y/ /u/

 /e/ /o/

 /ɛ/ /ɔ/

 /a/

Phoneme-grapheme correspondences

/i/	⟨I⟩, ⟨EI⟩, ⟨H⟩, ⟨HI⟩, ⟨Y⟩, ⟨YI⟩
/e/	⟨E⟩
/ɛ/	⟨AI⟩
/a/	⟨A⟩, ⟨AI⟩

may have existed until then, was abolished by the merger of the long and the short i-sounds.

However, this structure had already changed partially before the disappearance of /:/, viz. through the merger of /e:/ (grapheme <H>) with /e:/ (grapheme <E>).

This change /e:/ > /i:/ must, of course, have preceded the equalization of vowel length, because otherwise /e:/ and /e/ would have merged, which did not take place.

³¹⁸ Cf. above, p. 40.

³¹⁹ MG accent is a stress accent accompanied by pitch.

/o/	$\langle \Omega \rangle, \langle \Omega I \rangle$
/o/	$\langle O \rangle$
/u/	$\langle OY \rangle, \langle Y \rangle^{320}$
/y/	$\langle OI \rangle$

DYNAMICS OF CHANGE

The development on the back vowel axis was discussed above (pp. 291 f.). It was stated that there was a combination of pressure and attraction to produce the series of changes among the back vowels. We shall now see that there was probably a similar process on the front axis (pp. 287 n. 294) a certain

We shall now see that there was probably a similar process on the front vowel axis. As stated above (p. 287, n. 294) a certain attracting force from the position of /i:/ may be assumed. This alone may have been sufficient to attract /e:/ and cause its merger with /i:/ and, consequently, to produce a further attraction on /ɛ:/ (grapheme <H>).

However, there is another factor to be considered in the development of the front vowels, namely monophthongization.

Monophthongization may be said to have been the most conspicuous phenomenon in the development of Attic vowel changes. Most monophthongizations were /ou/ > /o:/ and /ei/ > /e:/.

The earliest monophthongizations were /ou/ > /o:/ and /eu/ > /e:/.³²¹ The former is perhaps already to be seen in the earliest Attic inscription, namely in the form τῶτο IG II² 919, dated 735/25,³²¹ and then the variant <O> for <OY> becomes more and more frequent down to the 4th century when it is established as a norm. The latter (<E> for <EY>) begins as early as ca. 650³²² and the

The variation $\langle EI \rangle \sim \langle E \rangle$ begins as early as ca. 650³²² and the variation $\langle I \rangle \sim \langle EI \rangle$ is documented from the beginning of the 6th century.³²³

These two monophthongizations were immediately followed by a third, viz. /yi/ > /y:/, which was accomplished in the 6th century at the latest.³²⁴

The first long diphthong to be monophthongized was /ε:i/. This change began about the end of the 6th century.³²⁵

³²⁰ This grapheme corresponds to /u/ where this phoneme is represented by the allophone [w], i.e. in diphthongs.

³²¹ The interpretation of τῶτο as = τῶτο is, however, somewhat doubtful.

³²² The form εἰμί is found on a subgeometric cup (Allen, *Vox Graeca*, p. 67, n. 3).

³²³ Cf. above, pp. 75 and 78, Vars. 1—2.

³²⁴ Cf. above, p. 201 and Mhs, pp. 60 f.

³²⁵ Cf. above, p. 188, Conclusion 1; cf. also Brandenstein, *Sprachwiss.*, p. 76.

Two more monophthongizations beginning in the 6th century were /ai/ > /æ:/ and /oi/ > /ɛ:/.³²⁶ As regards the latter change, it cannot be doubted that it had been finished ca. 430,³²⁷ and the former may for phonological reasons be supposed to have been accomplished just as early. The latter conclusion is a consequence of the conclusions drawn about the changes /ɛ:/ > /e:/ (grapheme <H>) and /ɛ:i/ > /e:/ (graphemic sequence <HI>):³²⁸ The position between /a(:)/ and /e(:)/ could not remain (or even become) vacant.

Before we discuss the change /ai/ > /æ:/ (> /ɛ:/) further, it should also be noticed that the remaining long diphthongs, /a:i/ and /ɔ:i/, were monophthongized into /a:/, /ɔ:/ during the 5th and the beginning of the 4th century, which implies that there no longer existed any i-diphthongs in Attic.

Furthermore, the u-diphthongs were already changing in the 4th century. It is probable that, during a period after these last monophthongizations, there was no diphthong at all in Attic.

It may be established that there existed in Attic, from the earliest times that this dialect can be studied, a strong and general tendency of adjacent vowel phones to coalesce. This is seen in the contractions of [e] + [e] and [o] + [o] (which took place in all Greek dialects) with a *terminus post quem* located in the last quarter of the 2nd millennium but without a determinable *terminus ante quem*,³²⁹ further [e] + [a:], [e] + [a], [e] + [o], [e] + [ɔ:] etc. These phenomena are well-known and need not be discussed further here.

Generally, contraction and monophthongization are the outcome of one and the same phonetic process. The contraction of vowel phones of different phonetic quality, e.g. [e] and [o], produces a diphthong at the first stage. Its subsequent monophthongization is the continuation of the same development.

Other phenomena of the same kind are crasis, elision, and syneresis.

All these phenomena are especially typical of Attic, although most of them are common to all Greek dialects.

³²⁶ Cf. above, pp. 197 and 204.

³²⁷ Cf. above, p. 253. It is possible that this monophthong had already been fronted into /y:/ at that time.

³²⁸ Cf. above, pp. 185 f. and 188, Conclusion 2, and further pp. 263 f.

³²⁹ Cf. Bartoněk, *Long-vowels*, p. 71. The *terminus post quem* is represented by the disappearance of intervocalic [j] and [h].

Considering, then, the general tendency of Attic to give rise to single vowels in the place of diphthongs and vocalic sequences, it is safe to assume that the general monophthongization process, the results of which were surveyed above, was a primary and fundamental force in the development of the vowel system.

This theory will account for the changes in the front vowel series in a natural way: If we assume that /ai/ was subject to a general monophthongization process in the language, its change into a single vowel should no longer be looked upon as being in the first place a consequence of the narrowing changes in the front vowels, but rather as being a cause of origin of these changes.

The conclusion will be the following: There existed on the front vowel axis two co-operating forces, on the one hand an attraction from the position of /i:/, caused by the low frequency of this phoneme,³³⁰ on the other a pressure from below, caused by the monophthongization going on in /ai/.

This situation on the front axis was then parallel to the one on the back axis³³¹ that caused the fronting of /u(:)/ and the subsequent narrowing of /o:/.

Furthermore, it is obvious that the origin of the new phonemes /e:/ and /o:/ contributed substantially to the changes on both axes: the location of /e:/ (produced by contraction of [e] + [e], compensatory lengthening, or monophthongization of /ei/) between the functionally weak /i:/ and the strong /ɛ:/ was very apt to lead to a merger /e:/ > /i:/. It is, then, only natural that the first traces of this change are already to be found at the beginning of the 6th century.³³²

As regards the counterpart of /e:/ on the back axis, i.e. /o:/, it was stated above (p. 291) that conditions favouring a corresponding change /o:/ > /u:/ existed from the 9th century.

To return again to the front vowel axis, the further narrowing change /ɛ:/ (grapheme <H>) > /e:/, subsequent to /e:/ (<EI>) > /i:/ is not to be expected, because vowel systems tend to be symmetrical.³³³

Nevertheless, it is unquestionable that /ɛ:/ changed into /e:/ very

³³⁰ Cf. above, p. 287, n. 294.

³³¹ Cf. above, pp. 291 f.

³³² Cf. above, pp. 75 and 78, Vars. 1—2.

³³³ Cf. Hockett, pp. 84—89.

early and, moreover, continued its shift until it reached the position /i:/.³³⁴

It is evident that this continuous narrowing process in the sound corresponding to <H> cannot be explained unless there was a pressure from below, just as was the case with /o:/ on the back axis, where the new phoneme /a:/, originating from the second compensatory lengthening (cf. above, p. 291), started the development.

Consequently, to explain the documented change of /ε:/ we shall assume a pressure from a monophthongal sound, originating from /ai/, which forced its way into the front vowel series and soon established itself in the position /ε:/.

One more problem remains to be discussed: Why did not /e:/ (<ε:/) remain in its new position, but continue its shift so as to merge with /i:/?

To answer this question we should recall that all the monophthongizations, except those of the u-diphthongs, had as a consequence that the phoneme /i/ lost allophones and thus became more and more infrequent.

It was observed above that long and short vowels of basically the same phonetic quality were connected so as to accompany each other in phonetic change: /u(:)/ > /y(:)/ and further /y(:)/ > /i(:)/.³³⁵

It is reasonable, then, to look upon /i:/ — /i/ and /e:/ — /e/ as being coupled together in pairs. The continuous reduction of functional load and frequency in /i/ through the monophthongizations may therefore be regarded as a reduction in the i-position as a whole and, consequently, it produced an attraction on both the e-sounds, in the first place on the short /e/,³³⁶ but also on /ε:/, through the connection between these sounds.

But only /e:/ changed into /i:/. This was because of the pressure from behind, produced by the new long vowel /æ:/ (that was soon changing into /ε:/).

The absence of a corresponding vowel /ε/ to press /e/ prevented its merger with /i/.

The existence of a phonemic distinction between long and short vowels was thus a prerequisite of this development, besides the other causes mentioned. Its disappearance soon after the change

³³⁴ Cf. above, pp. 183—186, and further 187—191.

³³⁵ Cf. above, p. 291.

³³⁶ This is shown by primary graphic evidence to have been the case; cf. above pp. 178 and 286.

/e:/ (<H>) > /i:/ had been accomplished, then, resulted in the structure on the front axis that was outlined above (p. 294).

The change /y(:)/ > /i(:)/ remains to be discussed. This change may also be regarded as an outcome of a monophthongization, viz. of /oi/. If the new phoneme resulting from this monophthongization advanced soon into a front position,³³⁷ the phoneme already occupying that position had either to change and merge with /i(:)/ or else to merge with the advancing new vowel. The graphic evidence in support of the former alternative is decisive: the old and the new y-sounds did not merge.³³⁸

It was established above (p. 295) that monophthongization was a basic tendency in the development of the Attic phonemic system. Consequently, the pressure on /y(:)/ from the new monophthong originating from /oi/ may be posited. To explain why /y(:)/ changed into /i(:)/ is more difficult, but this change too (as well as /e:/ (grapheme <H>) > /i(:)/) may perhaps have been promoted by the continuous reduction in the i-position that was caused by the numerous monophthongizations (cf. above, p. 298).

THE CONSONANT SYSTEM

1 Stops

The voiceless series /p/, /t/, /k/ had apparently not undergone any change, and this was not to be expected either, seeing that these phonemes are still unchanged in MG.

³³⁷ The graphic evidence (Neutralizations 15 and 16a—16g, pp. 202—205) points to a central phonetic quality, while the particularly strong secondary evidence (p. 253) indicates a close front quality.

On the basis of the known later development of the monophthong originating from /oi/ (MG /i/), it may be maintained according to *Principle 5* (above, p. 283) that this must have been a close vowel, because otherwise it might have merged later with /e/ (MG /ε/), but not necessarily a front vowel.

Considering, however, the general phonetic characteristic of Greek, of having no close central vowels, it seems probable that the sound was fronted early into the [y]-position.

³³⁸ Cf. above, pp. 199 f. — The Byzantine naming of <Υ> as υ ψιλόν and <Ε> as ε ψιλόν as opposed to οι δίφθογγος and αι δίφθογγος respectively indicates a preserved pronunciation [y] of the vowel corresponding to <Υ>. Such evidence is only relevant to the conservative subdialect of that period (and area); cf. above, pp. 244—247.

As regards the voiced series /b/, /d/, /g/ there is evidence of a change into a fricative quality, but only in /g/.³³⁹

In the aspirated series /p^h/, /t^h/, /k^h/ there is no conclusive evidence of a change.³⁴¹

It is to be expected that the voiced and the aspirated series changed during a relatively short period, and further that all three sounds within each series changed roughly at the same time. This is because of the close systematic correlations between these series and between the sounds of each series.³⁴² An isolated change /g/ > /ʁ/ implies that this fricative is only partly integrated, namely with the new phoneme /z/.³⁴³

Considering, then, the lack of evidence of a change in the correlated phonemes of the voiced series, viz. /b/ and /d/, and in those of the aspirated series, it seems reasonable to conclude that the change /g/ > /ʁ/ had only begun to propagate, but had not yet been accomplished in the dialect of the majority.³⁴⁴

³³⁹ Neutralizations 35f—35h, above, pp. 223 ff.; and further p. 266 (Plat. Com. Fr. 168 Kock).

The infrequency of Var. 87 (one instance), together with the absence of variations such as <EY> ~ <EB>, <AY> ~ <AB> prove that /b/ had not changed into a fricative; cf. above, pp. 220 f.

Likewise, the negligible evidence of Vars. 157—160, together with the absence of a variation <Δ> ~ <Σ>, prove that /d/ had not changed into a fricative; cf. above, pp. 221—223.

³⁴⁰ To describe the aspirates as being composed of /p, t, k/ + /h/ appears to be inadequate, because this would imply that clusters of four consonants occurred word-initially, which would not be in accordance with the phonotactic rules of the language; for example σφραγίς [sphra:gís] and φθίσις [phthísís]; cf. Brandenstein, *Sprachwiss.*, p. 70.

³⁴¹ The negligible evidence of Var. 132 and the absence of variations such as <EY> ~ <EΦ>, <AY> ~ <AΦ>, and <Θ> ~ <Z> prove that /p^h/ and /t^h/ had not changed into fricatives.

On the other hand, the contrary evidence showing a preserved stop quality is strong: Neutralizations 33a—33b, 34a—34b, and 35a—35b (pp. 220—225). The secondary evidence (pp. 257 f.) on either side is insignificant.

³⁴² Cf. Martinet, *Économie*, pp. 79 f., 85, 103 f., and 113—115.

³⁴³ It is only partly correlated to /z/ (and indirectly to /s/) because /s/ and /z/ are groove fricatives, while /ʁ/ is a slit fricative (and /s/ is voiceless).

³⁴⁴ It may perhaps be supposed that all the phonemes in both series were just at the very beginning of the change and that this had begun and/or advanced most rapidly in /g/.

2 Fricatives

After the change [zd] > [z(:)] had been accomplished—a change which most probably concerned the dialect of the majority³⁴⁵—the dialect possessed two dental (or alveolar) fricatives, viz. /s/ and /z/. The former probably had a voiced allophone [z] /-/voiced C/.

The latter conclusion is based on primary graphic evidence (see note 345) as well as on phonological evidence: The circumstance that there must have existed a voiced allophone [z] /-/d/ makes it seem reasonable to suppose that this allophone occurred generally /-/voiced C/.

It was concluded on the basis of the graphic evidence³⁴⁶ that the sound [h] still existed in the 4th century. In the secondary material there is evidence both of its existence³⁴⁷ and of its absence,³⁴⁸ but neither kind can be said to be significant.

The phonological and diachronic evidence of the existence of [h] after 403 is decisive.³⁴⁹

Now the question arises whether this sound is to be described as a phoneme or not. Some scholars have denied it phonemic status, for example Bartoněk³⁵⁰ and Brandenstein.³⁵¹

L. Lupaş,³⁵² however, has convincingly shown that Attic [h] should be interpreted as a phoneme, just as is the case with this sound in other languages. The phonotactic restrictions on the distribution of this sound are a universal phenomenon, and there are many languages besides Attic where [h] occurs only word-initially (and in compounds).³⁵³

Consequently, we should interpret the sound as a phoneme /h/.

It was stated above that in the dialect of a minor part of the population there existed a fricative /ʁ/ (< /g/).

³⁴⁵ The primary graphic evidence (Neutralizations 36a—36c, pp. 225 ff.) is supported by secondary evidence (pp. 267 f.).

³⁴⁶ Above, p. 231.

³⁴⁷ Above, p. 266 (Arist. *Soph. El.* 10,20, 177 b 1).

³⁴⁸ Above, p. 258.

³⁴⁹ Cf. above, p. 270, n. 264.

³⁵⁰ *Consonants*, p. 176.

³⁵¹ *Sprachwiss.*, p. 100. Cf. above, p. 41, n. 42.

³⁵² *Phonologie*, p. 105—107.

³⁵³ Cf. Lupaş, *l.c.* p. 106, n. 6.

3 Resonants

The liquids /l/ and /r/ offer no particular difficulties of description.³⁵⁴ In word-initial position /r/ may have had a voiceless aspirated allophone.³⁵⁵

There were two nasal phonemes in Attic, viz. /m/ and /n/. The latter had a velar allophone [ŋ] /-velar stop/.

The allophone [ŋ] is also supposed to have occurred /-nasal/, but this is probably not true of Attic.³⁵⁶

4 Consonant length

It was concluded above (p. 235) on the basis of the graphic evidence that the equalization of consonant length had probably been almost accomplished ca. 350.

To decide whether the change had spread so as to comprise the majority of the people or not is, of course, very difficult, but since the graphic neutralization 42 begins as early as the 6th century, there is reason to suppose that this was the case.³⁵⁷

³⁵⁴ The phonetic quality of /l/ was certainly lateral; cf. above, p. 266 (Plat. *Crat.* 427 b).

As regards /r/ the graphic evidence was interpreted above, p. 240 as indicating a fricative quality [ɹ], but the decisive orthophonic statement by Plato, *Crat.* 426 e (above, p. 265) indicates a trilled [r].

This contradictory evidence may perhaps reflect different pronunciations. However, the interpretation of the graphic material is rather doubtful. Anyhow, the problem has no phonemic relevance.

³⁵⁵ Cf., for example, Sturtevant, p. 61 and Allen, *Vox Graeca*, pp. 39 f.

However, there is no graphic evidence to support this.

³⁵⁶ Cf. Sturtevant, pp. 64 f. and Allen, *Vox Graeca*, pp. 33—36.

However, the almost total lack of graphic evidence for that theory in Attic is striking. In all periods the sound [ŋ] /-velar stop/ corresponds to <N>/<Γ> (<N> is very frequent; cf. Mhs, p. 112,5—6). If [ŋ] occurred also /-nasal/, we should expect a high frequency of <N> in this position too, for example *πρῆνμα*, *ἀννός* (= *ἀγνός*) etc. (cf. Mhs, p. 113,8).

But there are very few examples of this in Attic; cf. Kr., pp. 171 f. *Ἀριάννη*, *γίνουμι* etc. Otherwise, there are only a few instances of omission of <Γ> in this position: Var. 146,6, 8, 11; and of <Ι> for <Γ>: Var. 148, 1 and 4 (above, p. 138).

³⁵⁷ The idea that the earliest instances of graphemic neutralization should be interpreted as an indication of a corresponding phonetic change at its first stage is demonstrated by Katičić, *Živa Antika*, 9 (1959) 131 "Dès la première moitié du 3^e siècle avant notre ère on observe les premières traces de l'aboli-

The Phonemes of Attic 400—340 B.C.

CONCLUSION

The phonemic system of the dialect spoken by the majority of the Attic speaking population in the period 400—340 B.C. comprised the following phonemes:

Vowels: /i, e, ε, a, o, o, u, y/

Consonants: /p, t, k, b, d, g, p^h, t^h, k^h, s, z, h, l, r, m, n/

Accent: /' /

MINIMAL PAIRS

The existence of the phonemes arrived at in this orthographic study is illustrated by the following minimal pairs:³⁵⁸

Opposition	Minimal pair	(Graphic form)
/a/ : /i/	/pátho/ : /pítho/	(πάθω : πείθω)
/a/ : /e/	/dasmós/ : /desmós/	(δασμός : δεσμός)
/a/ : /ε/	/ykía/ : /ykíε/	(οἰκία : οἰκίαι)
/a/ : /o/	/pás/ : /pós/	(πᾶς : πῶς)
/a/ : /o/	/ála/ : /álo/	(ἄλλα : ἄλλο)
/a/ : /u/	/án/ : /ún/	(ἄν : οὖν)
/a/ : /y/	/ála/ : /ály/	(ἄλλα : ἄλλοι)
/p/ : /t/	/póte/ : /tóte/	(πότε : τότε)
/p/ : /k/	/optó/ : /októ/	(ὀπτῶ : ὀκτώ)
/b/ : /d/	/bólos/ : /dólos/	(βόλος : δόλος)
/b/ : /g/	/labón/ : /lagón/	(λαβών : λαγών)

tion de l'opposition phonologique entre les géminées et les simples. C'est surtout à Athènes et à Delphes qu'on a trouvé des inscriptions qui négligent cette opposition."

Katičić is quite right, except that the earliest instances of this graphemic neutralization date from the 6th century.

³⁵⁸ The existence of the phonemes of an historical stage of a language cannot be proved by commutation tests and minimal pairs, unless we possess records of speech from the period investigated. If such tests must be built on a reconstructed, more or less conjectural, phonetic pattern gained by studies of extant graphic and other material of the language in question, they cannot provide any further knowledge but may only illustrate the results of the analyses of that material.

/p/ : /p ^h /	/póros/ : /p ^h óros/	(πόρος : φόρος)
/t/ : /t ^h /	/étos/ : /ét ^h os/	(ἔτος : ἔθρος)
/g/ : /k ^h /	/ágos/ : /ák ^h os/	(ἄγος : ἄχρος)
/n/ : /s/	/pónos/ : /pósos/	(πόνος : πόσος)
/s/ : /z/	/sóma/ : /zóma/	(σῶμα : ζῶμα)
/p/ : /h/	/pós/ : /hós/	(πῶς : ὥς)
/n/ : /l/	/neós/ : /leós/	(νεώς : λεώς)
/m/ : /r/	/tomós/ : /torós/	(τομός : τορός)

The existence of the accent phoneme is illustrated by the pair /nómos/ : /nomós/ (νόμος : νομός).

*

To sum up, it may be said that the changes in the vowel system during the centuries from the introduction of the alphabet down to the period 400—340 were considerable, while the consonant system remained almost unchanged. Taken as a whole, the Attic dialect may not be said to have undergone an especially large account of changes, considering the length of the period.

It may be observed that there had been a number of changes within the consonant system during the last centuries before the alphabet was introduced, for example the changes of [j] and [s] (and partly the disappearance of [w] (*digamma*)). These profound changes in the consonant system influenced the vowel system very considerably, because they initiated the contractions and monophthongizations that, as we have outlined above (pp. 295—299), may be looked upon as the causes of origin of the entire series of changes in the vowel system. Once the system had lost its symmetry and balance, the development went on irresistibly until the vowel system regained a more symmetric structure.

In the consonant system the symmetry remained undisturbed during the whole period. The only change was the origin of /z/ that was easily integrated as a voiced counterpart of /s/. Only the beginning shift of the aspirated and the voiced stops into fricatives involved a radical reorganization of the system, but this development was only at its beginning in the period 400—340.

As the extensive reorganization of the vowel system can be given a natural explanation, as being the result of previous changes in the consonant system it is not so striking as it might first appear.

However, what is remarkable is the fact that the vocalic system arrived at ca. 350 B.C. has—as far as we know—undergone only few changes during the millennia down to MG. Only in the consonant system has there been a considerable development between that time and today.

We do not know very much about the spoken Greek dialects during the Hellenistic and the imperial periods. It may be supposed that there existed rather considerable differences between the dialects spoken in Egypt, Sicily, Rome, Asia Minor, and Syria. The conformity of the written Koine should not bring about the idea that there was a corresponding conformity in the spoken language.

There is good reason to suppose that differences in the spoken language could be discovered and described by orthographic studies similar to this one. A number of such studies of graphic material from various parts of the Greek speaking area in a given period would provide a comprehensive picture of spoken Koine at that time.

To acquire more exact knowledge of the historical development of Greek down to the present stage, viz. Modern Greek, we shall have to carry out a series of such essentially synchronic orthographic studies, examining written documents: inscriptions, papyri, manuscripts etc., from the period and area investigated.

Such a procedure would certainly increase our knowledge of the subject, of which we know too little, the later development of Greek.

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ABBREVIATIONS

begin.	Beginning.
CL	Inscription published with a transcription in capital letters.
Comm.	Inscription published with a commentary or note.
FS	Inscription published with a facsimile.
IE	Indo-European.
Inscr. exam.	Inscription examined in the original.
MG	Modern Greek.
OA	Old Attic (refers exclusively to the graphemic system of the period before 403).
Ph.	Inscription published with a photograph.
Spec. ph.	Special photograph of inscription acquired.
Var.	Orthographic variant or orthographic variation (the latter when used in connection with "(graphemic) neutralization").

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List of Orthographic Variations

Variation (the orthographic norm to the left)	Tentative phoneme(s) corresponding to the orthographic norm	Page
1. <E>/<EI> ~ <I>	/e:/	75
2. <I> ~ <E>/<EI>	/i:/	78
3. <I> ~ <E>/<EI>	/i/	79
4. <E> ~ <I>	/e/	80
5. <E> ~ <EI>	/e/	81
6. <E> ~ <EI>	/e/	82
7. <IEI> ~ <EI>	/ie:/	84
8. <EI> ~ <IEI>	/e:/	85
9. <E>/<EI> ~ <IE>	/e:/	85
10. <E> ~ <IE>	/e/	85
11. <H>(<E>) ~ <EI>	/ε:/	85
12. <E>/<EI> ~ <H>	/e:/	85
13. <H> ~ <E>	/ε:/	85
14. <E> ~ <H>	/e/	87
15. <E> ~ <HE>	/e/	89
16. <H> ~ <IH>	/ε:/	90
17. <H>(<E>) ~ <I>	/ε:/	90
18. <I> ~ <H>(<E>)	/i/	91
19. <I> ~ <H>(<E>)	/i:/	92
20. <HI>/<EI>(<EI>) ~ <H>(<E>)	/ε:i/	92
21. <H>(<E>) ~ <HI>	/ε:/	93
22. <HI>/<EI> ~ <E>	/ε:i/	93
23. <HI>(<EI>) ~ <EE>	/ε:i/	93
24. <EI> ~ <EEI>	/ε:i/ or /e:/	93
25. <EI> ~ <HI>	/e:/	94
26. <HI> ~ <I>	/ε:i/	94
27. <A> ~ <H>	/a/	95
28. <H> ~ <A>	/ε:/	95

Variation (the orthographic norm to the left)	Tentative phoneme(s) corresponding to the orthographic norm	Page
	/e:/	95
29. <EI> ~ <A>	/e/	95
30. <E> ~ <A>	/a/	95
31. <A> ~ <E>	/a/	96
32. <A> ~ <I>	/a:i/	96
33. <AI> ~ <A>	/a:/	97
34. <A> ~ <AI>	/ai/	97
35. <AI> ~ <A>	/ai/	99
36. <AI> ~ <A>	/a/	100
37. <A> ~ <AI>	/ai/	101
38. <AI> ~ <AE>	/ai/	101
39. <AI> ~ <AIH>	/ai/	101
40. <AI> ~ <H>	/ε:/	101
41. <H> ~ <AI>	/ai/	101
42. <AI> ~ <E>	/e/	102
43. <E> ~ <AI>	/e:/	102
44. <E>/<EI> ~ <AI>	/e:/	102
45. <E>/<EI> ~ <AE>	/e/	102
46. <E> ~ <AIE>	/ai/	103
47. <AI> ~ <HI>	/ai/	103
48. <AI> ~ <I>	/y(:)/	103
49. <Y> ~ <I>	/i/	105
50. <I> ~ <Y>	/y(:)/	106
51. <Y> ~ <YI>	/y/	106
52. <Y> ~ <YI>	/i/	107
53. <I> ~ <YI>	/y/	107
54. <Y> ~ <E>	/e/	107
55. <E> ~ <Y>	/y:/	107
56. <Y> ~ <EI>	/e:/	107
57. <EI> ~ <Y>	/y(:)/	107
58. <Y> ~ <H>	/y/	108
59. <Y> ~ <O>	/o/	108
60. <O> ~ <Y>	/oi/	108
61. <OI> ~ <O>	/oi/	109
62. <OI> ~ <O>	/o/	109
63. <O> ~ <OI>	/o/	110
64. <O> ~ <OI>	/oi/	110
65. <OI> ~ <YOI>	/y(:)/	110
66. <Y> ~ <OI>	/oi/	110
67. <OI> ~ <AI>	/ai/	111
68. <AI> ~ <OI>	/oi/	111
69. <OI> ~ <OE>	/oi/	111
70. <OI> ~ <EI>	/oi/	111

Variation (the orthographic norm to the left)	Tentative phoneme(s) corresponding to the orthographic norm	Page
71. <EI> ~ <OI>	/e:/	111
72. <OI> ~ <E>	/oi/	111
73. <OI> ~ <I>	/oi/	111
74. <OR> ~ <OI>	/u:/	112
75. <OI> ~ <OR>	/oi/	112
76. <O> ~ <A>	/o/	112
77. <A> ~ <O>	/a/	112
78. <E> ~ <O>	/e/	112
79. <O> ~ <E>	/o/	113
80. <Ω> ~ <E>	/ɔ:/	113
81. <EY> ~ <E>	/eu/	113
82. <E> ~ <EY>	/e/	113
83. <EY> ~ <Y>	/eu/	114
84. <Y> ~ <EY>	/y/	114
85. <EY> ~ <EI>	/eu/	115
86. <EY> ~ <EYE>	/eu/	115
87. <EY> ~ <EYB>	/eu/	115
88. <EY> ~ <IY>	/eu/	115
89. <EY> ~ <HY>	/eu/	115
90. <AY> ~ <A>	/a(:)u/	116
91. <AY> ~ <AO>	/au/	116
92. <O> ~ <OR>	/o/	116
93. <Y> ~ <OR>	/y/	116
94. <O>/<OR> ~ <Y>	/u:/	116
95. <Ω> ~ <O>	/ɔ:/	117
96. <O> ~ <Ω>	/o/	117
97. <Ω> ~ <OΩ>	/ɔ:/	119
98. <ΩI> ~ <OI>	/ɔ:i/	121
99. <OI> ~ <ΩI>	/oi/	121
100. <ΩI> ~ <OR>	/ɔ:i/	121
101. <O>/<OR> ~ <Ω>	/u:/	122
102. <O>/<OR> ~ <OΩ>	/u:/	122
103. <Ω> ~ <A>	/u:/	123
104. <A> ~ <Ω>	/ɔ:/	123
105. <ΩI> ~ <AI>	/a/	123
106. <ΩI>(<OI>) ~ <Ω>(<O>)	/ɔ:i/	123
107. <Ω>(<O>) ~ <ΩI>(<OI>)	/ɔ:i/	123
108. <ΩI> ~ <ΩII>	/ɔ:/	124
109. <Θ> ~ <α>	/ɔ:i/	125
110. <Θ> ~ <α>	—	125
111. <α> ~ <αα>	—	125
112. <α> ~ <αα>	/V:/	125
	/V/	126

Variation (the orthographic norm to the left)	Tentative phoneme(s) corresponding to the orthographic norm	Page
	/V(:)/ or /V:/	126
	/V(:)/	127
113. <α(α)> ~ <Θ>	/p ^h /	131
114. <α> ~ <Θ>	/p ^h /	131
115. <Φ> ~ <Π(Π)>	/p ^h /	131
116. <Φ> ~ <Ψ>	/p ^h /	132
117. <Φ> ~ <ΥΦ>	/b/	132
118. <Β> ~ <Π>	/b/	132
119. <Β> ~ <Φ>	/b/	132
120. <Β> ~ <Θ>	/p ^h /	132
121. <Φ> ~ <Χ>	/m/	132
122. <Μ> ~ <Β>	/t/	132
123. <Τ> ~ <Θ>	/t ^h /	133
124. <Θ> ~ <Τ>	/t ^h /	133
125. <Θ> ~ <ΤΘ>	/t/	133
126. <Τ> ~ <Δ>	/d/	133
127. <Δ> ~ <Τ>	/t ^h /	134
128. <Θ> ~ <Δ>	/d/	134
129. <Δ> ~ <Θ>	/t ^h /	134
130. <Θ> ~ <Θ>	/d/	134
131. <Δ> ~ <Θ>	/t ^h /	134
132. <Θ> ~ <Σ>	/t/	134
133. <Τ> ~ <Σ>	/s/	135
134. <Σ> ~ <Τ>	/k/	135
135. <Κ> ~ <Χ>	/k ^h /	135
136. <Χ> ~ <Κ>	/k/	136
137. <Κ> ~ <Χ>	/k/	136
138. <Κ> ~ <ΧΚ>	/g/	136
139. <Γ> ~ <Κ>	/k/	136
140. <Κ> ~ <Γ>	/k/	137
141. <Κ> ~ <Γ(Κ)>	/g/	137
142. <Γ> ~ <Χ>	/k ^h /	137
143. <Χ> ~ <Γ>	/k ^h /	137
144. <Χ> ~ <Θ>	/g/	137
145. <Γ> ~ <Θ>	/g/	138
146. <Γ> ~ <Θ>	/g/	138
147. <Γ> ~ <α>	/g/	138
148. <Γ> ~ <Ι>/<Ε>	/g/	138
149. <Γ> ~ <Σ>	/t ^h /	139
150. <Θ> ~ <Χ>	/sd/ or /ds/	139
151. <Ζ> ~ <Σ>	/s/	139
152. <Σ> ~ <Ζ>	/sd/ or /ds/	139
153. <Ζ> ~ <ΣΖ>	/s/	140
154. <Σ> ~ <ΣΖ>		

Variation (the orthographic norm to the left)	Tentative phoneme(s) corresponding to the orthographic norm	Page
155. <T> ~ <Z>	/t/	
156. <Z> ~ <T>	/sd/ or /ds/	140
157. <Δ> ~ <Z>	/d/	140
158. <Z> ~ <Δ>	/sd/ or /ds/	140
159. <Z> ~ <ZΔ>	/sd/ or /ds/	140
160. <Δ> ~ <ΣΔ>	/d/	140
161. <Ξ>(<XΣ>) ~ <Σ(Σ)>	/k ^{hs} /	140
162. <Σ> ~ <Ξ>	/s/	141
163. <Z> ~ <Ξ>	/sd/ or /ds/	141
164. <XΣ> ~ <X>	/k ^{hs} /	141
165. <XΣ> ~ <XΣX>	/k ^{hs} /	141
166. <ΣX> ~ <XΣ>	/sk ^h /	141
167. <K> ~ <Ξ>(<XΣ>)	/k/	142
168. <XΣ> ~ <KΣ>	/k ^{hs} /	142
169. <XΣ> ~ <ΣK>	/k ^{hs} /	142
170. <Ψ>(<ΦΣ>) ~ <Σ>	/p ^{hs} /	142
171. <Σ> ~ <Ψ>	/s/	142
172. <ΦΣ> ~ <ΠΣ>	/p ^{hs} /	143
173. <N> ~ <K>	/n/	143
174. <Σ> ~ <Λ>	/s/	143
175. <P> ~ <I>/<E>	/r/	143
176. <Θ> ~ <H>	—	143
177. <Θ> ~ <H>	—	143
178. <σσ> ~ <σ>	—	144
179. <σ> ~ <σσ>	/C:/	145
180. <σ> ~ <Θ>	/C/	148
	/C/	153