

mit Erfolg angewandt haben¹²⁾. Ihre Erwähnung bei Aristoteles liefert den terminus ante quem¹³⁾. Sicher ist auch, daß die Analysis erheblich jünger ist als das indirekte Beweisverfahren, und ihre enge Verwandtschaft mit diesem läßt auf genetische Abhängigkeit schließen. Die Verwandtschaft aber besteht darin, daß beim indirekten Beweis aus dem kontradiktorischen Gegensatz der zu beweisenden Behauptung ein Widerspruch zu einer anerkannten Wahrheit abgeleitet wird, während bei der Analysis aus der zu beweisenden Behauptung selbst eine anderweitig bestätigte Wahrheit abgeleitet wird. Freilich muß dann die Analysis durch die Synthesis ergänzt werden, während der indirekte Beweis mit der Aufdeckung des Widerspruchs abgeschlossen ist. Ausgangspunkt aber für die Kette der Schlußfolgerungen ist in beiden Fällen eine fiktive Annahme. — Damit dürfte deutlich geworden sein, daß in der griechischen Mathematik die Fiktion, ein Phänomen, das sich in letzter Instanz aus den irrealen Bedingungssätzen herleitet, eine fundamentale Rolle spielt. Auch ist es gewiß interessant festzustellen, daß der Gebrauch der Fiktionen im mathematischen Bereich einer Entwicklung unterliegt, die derjenigen im sprachlichen Bereich parallel läuft: in einer ersten Phase werden die Fiktionen dazu verwendet, einen Kontrast sichtbar zu machen bzw. einen Widerspruch aufzuzeigen; in der zweiten Phase aber werden sie außerdem dazu gebraucht, eine Übereinstimmung evident zu machen, sei es mit den Gesetzen der realen Welt, sei es mit einer mathematischen Wahrheit. Der Zustand, der damit erreicht ist, ist eine Art von Gleichgewicht: die durch Gewohnheit sichergestellte Möglichkeit, jede Aussage der einen wie der anderen Prüfung zu unterwerfen.

Phonological Variation in Classical Attic and the Development of Koine

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Alphabetic writing in Greece dates back at least to the first half of the eighth century B.C. Although no extant document written in the new Greek alphabet is dated before the latter half of that

¹²⁾ Vgl. In primum Euclidis elementorum librum ed. Friedlein S. 67 und 211.

¹³⁾ Vgl. E. N. 1112 b 23.

century¹), this may safely be induced from, among other indications, the circumstance that in this eldest Greek alphabetic text the orthography already seems to have been settled and fixed. There is no difference in orthography between the earliest and the later archaic documents of Attic, as is the case, for instance, in early Latin²). In fact, not even since then has there been more than very few, and only marginal or temporary, changes in the Ionic-Attic and later Greek orthography³).

Phonological Changes and Orthography

This highly stable orthography is of great importance for the exploration of the development of the Greek language, especially for the establishment of the chronology of the phonological changes that have taken place. Phonological innovations cannot generally be expected to be reflected in writing otherwise than as sporadic deviations from the orthographic standard and only somewhat later than the time of the change.

It is rather well known which phonological changes have taken place in the history of Greek. The problem is to establish the chronology, absolute and relative, of the changes.

The iotacism is the most radical and conspicuous of the phonological reorganizations in the history of Greek after the introduction of the alphabet. By this is meant the merger of /e:/, /ε:/, /y(:)/, /yi/, /ε:i/, and /oi/ with /i(:)/. Besides there were the monophthongizations of /ai/, /a:i/, and /ɔ:i/, the fricativization of the series /p^h, t^h, k^h/ and /b, d, g/ and the second component of the diphthongs /eu/ and /au/, the change of the sequence corresponding to <Z> into a new phoneme /z/, and the loss of /h/ and the length phoneme /:/.

Because of the conservatism of Greek orthography practically all these phonological changes caused only sporadic and/or temporary orthographic variation or change⁴). These orthographic

¹) The oldest Greek text in alphabetic writing is the Attic graffito on the geometric vase from Dipylon dated ca. 735/25 (*IG I² 919*).

²) Cf. Stolz and Debrunner 1966: 71–75 and 80–90.

³) A similar conservation of an old orthographic system is found in English. The orthography had been fixed before the Late Middle English long vowel shift in the 15th century and has remained almost unchanged up to the present (cf. Anderson 1973: 138–139).

⁴) Only the monophthongization of the long diphthongs produced a lasting change of orthography; the iota adscript was dropped (Meisterhans

variations, found in texts written in the language, region and period investigated, form the most reliable evidence for finding out the origin of the phonological changes, locally, temporally, and socially and they do that just because of the stability of the orthographic norm. In comparison with this primary evidence, other information such as orthophonic statements, loanwords, rhymes, onomatopoeia etc. must be considered secondary and will normally provide only supplementary evidence.

The high evidential value of even infrequent orthographic variants has not hitherto been generally realized and accepted in research on Greek historical phonology, although, for example, in the similar case of English, as having a comparably fixed and traditional orthography, this fact was established long ago⁵). The historical phonologist ought to assign to the orthographic data its proper place as primary in comparison with other, above all orthophonic, evidence, according to the principle: "Orthoepic evidence is obviously of particular importance, whenever the orthography fails to indicate a phonemic change."⁶)

Iotacist and Etacists

The quite different estimation of these two types of evidence was the basic cause of antagonism between the two distinct schools in Greek historical phonology during the 19th century, the iotacists and the etacists. Only the former assigned full evidence value to sporadic orthographic deviations, and they did that almost to the exclusion of the other, not seldom contradictory, evidence, which in turn was the only one accepted as really evidential by the etacists. This dichotomy of approach was fatal to logical reasoning and thus caused the debate to be animated and polemic; to readers of today it appears rather amusing.

The crucial point at issue between the two combatant schools was the problem of dating the origin of phonological especially the iotacistic ones. The iotacists argued that practically all the changes took place in Classical Attic so that, with a few exceptions, the Modern Greek pronunciation was prevalent as early as the time of Plato. The etacists on their part contended that all

1900: 68) and later the iota subscript was introduced (cf. Schwyzer 1939: I 203).

⁵) Cf. Zachrisson 1913: 52, 155, 224; Wyld 1920: 65–71, 115–117.

⁶) Penzl 1957: 204.

changes had taken place after the classical period, in the Koine, and that sporadic orthographic deviations found in Classical Attic could be explained as scribe's mistakes or aberrant vulgar forms.

Eventually, after the etacists had got the better of the competition towards the end of the century, the discussion ebbed out and the research field of later Greek phonology almost came to lie in fallow. The current handbook still used by students of Attic phonology has by now reached the age of about eight decades⁷⁾, and in the field of Ptolemaic phonology the old handbook by Mayser (1906) was revised in a new edition 1970⁸⁾, albeit with a valuable inclusion of much new data, but without any new approach to the problem of the development of Greek phonology.

Schema and Method

At this stage it seemed desirable and promising to take up this old, and rather fascinating, issue again by making use of a new methodological approach implying that

(1) all possibly relevant instances of infrequent orthographic variants be collected and processed systematically, and that

(2) the phonetic evaluation of the orthographic data and the phonemic analysis be performed by the utilization of modern linguistic theories and existing knowledge of psycholinguistic mechanisms and sociolinguistic relationships.

The first demand was justified by the fact that, (a) a very large number of Attic inscriptions have been unearthed during the twentieth century, especially through the excavation of the Athenian Agora, which had not yet been orthographically examined at all and, (b) the corpus of inscriptions had never been made the subject of a systematic orthographic investigation involving the collecting of all relevant orthographic data⁹⁾, which is a prerequisite for an adequate comparison of the frequency of various orthographic variants and thus for a reliable phonetic evaluation.

The second demand was self-evident, considering the great achievements made in linguistics since the beginning of this century. The main point was the rejection of the prevalent *ad hoc* treatment and evaluation of each instance of orthographic variants.

⁷⁾ Meisterhans 1900.

⁸⁾ Mayser-Schmoll.

⁹⁾ The study by Strohschein (1940) forms an important exception, although the work is not without methodological defects.

Early Changes

The first investigation¹⁰⁾ was an orthographic study comprising all extant Attic primary texts written in Attica between the time of the introduction of the alphabet and 200 B.C. The main pieces of secondary evidence were included as well.

The study yielded interesting results. Thus it could be established that a series of iotacistic changes had begun and propagated in the Old Attic dialect. Some changes originated as early as the 6th century. The orthographic variations <EI>/<E> ~ <I>, <H> ~ <I>, and <Y> ~ <I> are represented before 500 by 26, 7, and 6 instances respectively. This indicates that the phoneme /i:/ had already replaced the phonemes /e:/, /ɛ:/, and /y(:)/ in the phonemic system of many speakers of Attic in pre-classical times.

Also the monophthongization of /ai/ to /æ:/ (later /ɛ:/) had begun in the 6th century. This was what could be expected as a result of the narrowing changes /ɛ:/ > /e:/ > /i:/, which produced a hole in the pattern on the front axis that had to be filled by a new phoneme. The most natural consequence of this situation was then the monophthongization of /ai/¹¹⁾. This phonological process is clearly reflected in the orthography by the variations <AI> ~ <A> and <AI> ~ <I>, which are represented before 500 by 13 and 8 instances respectively¹²⁾. There are also 5 instances of the variation <AI> ~ <E> dated in that century. The lower frequency of this neutralization is natural because the Old Attic grapheme <E> corresponded, at that time, to close e-sounds¹³⁾, long or short, of which at least the long ones¹⁴⁾ were changing into an i-sound. Only later, on the beginning of the Hellenistic period, did /e/ change into /ɛ/.

¹⁰⁾ Teodorsson 1974.

¹¹⁾ The structural aspects of the reorganization of the Old Attic vowel system was discussed by Teodorsson 1974: 295–299.—Martinet's (1955) theory of phonological change as due to internal, systematic, causes was confirmed through studies by Moulton (1960, 1962a, 1962b).

¹²⁾ One morpheme, {*καί*}, is represented in both variations by the forms {*καῖ*} and {*κί*}.

¹³⁾ The long vowel /ɛ:/—comprising the original /ɛ:/ as well as the primarily open sound produced by the Ionic-Attic shift /a:/ > /æ:/; (cf. Teodorsson 1973)—had closed into /e:/ during the 6th century, perhaps among the majority, and certainly in the group of Attic speakers in whose phonemic system the monophthongization of /ai/ was taking place.

¹⁴⁾ Also the short vowel /e/ seems to have changed into /i/ in the speech of many users of Classical Attic; cf. Teodorsson 1974: 80–81; and 1978: 61–13.

The only natural alternative to the traditional graphemic sequence <AI> as corresponding to the developing new monophthong /æ:/ was then <A>. This orthographic variant was also observed early by students of Greek orthography and phonology, but it was always supposed to occur only before a vowel. Thus it was interpreted as evidence of a conditioned change of /ai/ into /a:/ in this position.

Now, the systematic collecting of all instances of Attic infrequent orthographic variants has shown that <A> for <AI> begins earlier and is almost equally frequent in the position before a consonant as before a vowel. This fact had been overlooked—or perhaps ignored—by the 19th century scholars. Meisterhans (1900) does not even mention the existence of this variant elsewhere than before a vowel. The finding was thus an important indication of the validity of the comprehensive collecting of instances and their display in lists for the study of the frequency in different positions, as well as the chronology of occurrence.

From this new knowledge of the distribution of <A> for <AI> it follows that the traditional interpretation of this writing as indicating a special prevocalic change is impossible. It is obvious that this orthographic variant must be interpreted in the same way irrespective of the position of occurrence. The natural interpretation is that it was caused by the ongoing monophthongization of /ai/. Parallels of such a phonological development accompanied by the orthographic variation <AI> ~ <A> are found in archaic Latin¹⁵) and in Late Middle English.

Changes during the Classical Period

Not only did /ai/ begin to be monophthongized as early as the second half of the 6th century, but this is also true of /oi/, /yi/, and /ɛ:i/. During the 5th and the first half of the 4th century the development continued. The changes that had already been initiated spread in the population, and new changes originated. Examples of these are the monophthongization of the remaining long diphthongs, /a:i/ and /ɔ:i/, the beginning fricativization of the second component of the diphthongs /eu/ and /au/, fricativization of /g/, loss of /h/, the origin of the new phoneme /z/, the qualitative merger of /o/ and /ɔ:/, and the equalization of vowel and consonant length.

¹⁵) Cf. Leumann 1977: 67–69 and 419–420; and Teodorsson 1974: 194–195.

All these phonological changes were documented by a number of orthographic variations, among which many attain a rather high frequency. For example, before 300 the variation $\langle EI \rangle / \langle E \rangle \sim \langle I \rangle$ is represented by 96 instances, the variation $\langle H \rangle \sim \langle I \rangle$ by 46 instances, $\langle Y \rangle \sim \langle I \rangle$ by 69 instances, $\langle A \rangle \sim \langle AI \rangle$ (as corresponding to /ai/) by 126 instances, variations relevant to the fricativization of /g/ by 23 instances, variations relevant to vowel length by 399 instances¹⁶), and the variation $\langle \sigma \sigma \rangle \sim \langle \sigma \rangle$ ¹⁷) (relevant to consonant length) by 218 instances¹⁸).

It is of interest to note how very few of these early data are found in current handbooks. Although a large proportion of the instances are found in editions of access to Meisterhans (or, more correctly, to the reviser, Schwyzer) in 1900, these are either not mentioned or, if reported, more often labelled as “mistakes” than instances of a later date are¹⁹).

Some of the above-mentioned numerous instances of orthographic variants are certainly due to other causes than a changed pronunciation. But there is no method of stating in which instances this is actually the case. Statements can only concern the degree of possibility of a non-phonetic factor being involved in the origin of a given instance. In spite of this fact, the method of explaining away individual instances as due to this or that non-phonetic cause was prevalent among the etacists of the 19th century and has been in use as late as the 1960ies.

Only as long as the number of cases under discussion was small could such a method be used, in spite of its deficiencies. Now the large number of instances makes that position impossible. In addition, recent achievements in psycholinguistics, especially regarding the relations between speech and writing²⁰), have yielded a completely new basis for the evaluation of such data. Any departure, arisen through phonological change, from the ideal state of relation between the graphonomic and phonological systems of a language,

¹⁶) Teodorsson 1974: 218–219.

¹⁷) The notation $\langle \sigma \rangle$ means “syngrapheme”.

¹⁸) For orthographic reasons the variant $\langle \sigma \rangle$ for $\langle \sigma \sigma \rangle$ could not be studied during earlier periods and thus was recorded only from 425 onwards. Furthermore, the frequent cases of this variant in compositions of prepositions or augment + morphemes with initial /r/ were excluded (Meisterhans 1900: 95d–e).

¹⁹) Meisterhans 1900: 19, 7; 24, n. 128; 28, 2; 48, 25 and n. 357; 67, n. 586; 68, n. 590; 94, 5.

²⁰) For discussion and references cf. Teodorsson 1977: 36–42.

the one-to-one correspondence of graphemes and phonemes, produces a phonetic factor of orthographic variation, which cannot be eliminated from the writer's competence, and thus will make him commit a certain number of deviations from the orthographic norm when producing a given amount of text.

Inversely, the absence of a (supposed) discrepancy in the correlation phoneme-grapheme is demonstrated by the absence of relevant orthographic deviations²¹).

“Dimotiki” in the Time of Plato

On the basis of the hard data constituted of orthographic variants, which are sufficiently frequent and of phonologically relevant types, it is thus consistent to draw the conclusion that the old etacists—and many later followers—have always tried to escape, namely that extensive parts of the Modern Greek pronunciation had already developed in Classical Attic. The changes had crystallized a distinct innovative phonological subsystem, probably itself containing sub-variants. There existed a demotic language form in the Athens of Pericles, Socrates and Plato that might be called “Attic Dimotiki”, different from the traditional form at least in the phonology.

That this innovative subdialect originated in the lower social classes is evidenced by the earlier occurrence of the relevant orthographic variants in informal private documents such as vase inscriptions and ostraca.

Besides, the known passage in Plat. *Crat.* 418b–d would suggest that the women in particular had the iotacistic pronunciation, while Socrates and his friends apparently had the e-pronunciation of ⟨H⟩:

ΣΩ. Ἐγὼ σοι ἐρῶ. οἶσθα ὅτι οἱ παλαιοὶ οἱ ἡμέτεροι τῷ ἰῶτα καὶ τῷ δέλτα εἰ μάλ᾽ ἐχρῶντο, καὶ οὐχ ἥμισυ 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;

ΣΩ. Οἷον οἱ ἀρχαιοτάτοι “ἡμέραν” τὴν ἡμέραν ἐκάλουν, οἱ δὲ “ἐμέραν”, οἱ δὲ νῦν “ἡμέραν”.

²¹) For example, the *hapax* occurrence of the orthographic variant ⟨ΣΔ⟩ and the non-existent ⟨ΣΔ⟩ for ⟨Ζ⟩ in archaic and classical Attic (Teodorsson 1974) demonstrate that Old Attic ⟨Ζ⟩ cannot have corresponded to [zd]. For a more detailed discussion see Teodorsson 1979.

EPM. Ἔστι ταῦτα.

ΣΩ. Οἴσθα οὖν ὅτι μόνον τούτων δηλοῖ τὸ ἀρχαῖον ὄνομα τὴν διάνοιαν τοῦ θεμένου; ὅτι γὰρ ἀσμένοις τοῖς ἀνθρώποις καὶ ἱμεῖρουσιν ἐκ τοῦ σκότους τὸ φῶς ἐγγίγνεται, ταύτη ἀνόμασαν “ἱμέραν”.

Seeing that Plato is wrong in stating that [i:] was original and had changed into an e-sound²²), the only natural interpretation of the passage is that the i-pronunciation used by women was that of the innovative phonological system, and that, consequently, this was part of the mother tongue acquired by the children when living in the *γυναικωνῖτις* and, finally, that this i-pronunciation was then eliminated from the speech of the boys in school²³). This would mean that a clear majority of Attic speakers used the innovative subsystem in the former half of the 4th century. At that time the orthographic variants evidencing this system are rather frequent even in official documents.

It is well known that linguistic variation is often related to sex. Moreover, it has been established by a series of recent sociolinguistic investigations²⁴), which confirm earlier studies and reports²⁵), that the speech of women is mostly more innovative than men's speech. As yet the phenomenon remains unexplained.

It would then be warranted to set up the hypothesis that the innovative phonological subsystem of Attic, which was the forerunner of the Modern Greek phonology, had an important origin in the Attic female “genolect”, the speech of Attic women.

Phonological Variation

The new pronunciation was not accepted by the entire population. This is clearly evidenced, especially by the testimony of the ancient grammarians of much later times, and also by loan-words, transliterations and the other kinds of secondary material. The traditional pronunciation continued to exist, except for some innovative changes, practically intact throughout the pre-Christian era. This is the capacity proper to the secondary evidence, to attest the existence of a conservative linguistic form; only seldom can it

²²) Comparative (cf. Dor. *ἄμέρα*) as well as phonological and graphonomic facts are incompatible with Plato's statement. See discussion Teodorsson 1974: 264.

²³) Cf. Teodorsson 1974: 277, n. 272.

²⁴) Labov 1972: 301–304.

²⁵) Gauchat 1905: 205, 209, 211, 218–219, 224–226; Hermann 1929: 203.

demonstrate the date of origin and the range of propagation of new patterns.

It can be established, then, that there existed in Classical Attic a marked phonological variation implying that the dialect comprised at least two main phonological subsystems.

A study of the orthographic variation in Attic documents from the Hellenistic period²⁶⁾ corroborates, to a considerable extent, the information offered by the grammarians. Thus it was established that between the late 4th and the middle of the 3rd century the frequency of orthographic variation rapidly decreases, to remain low for about one century. This is true of all relevant orthographic variations except two, namely ⟨EI⟩ ~ ⟨I⟩ before a consonant or in final position, and ⟨Ω⟩ ~ ⟨O⟩. These two exceptions from the general pattern of decrease of frequency show, (1) that two phonological changes had been accomplished even in the conservative subsystem, /e:/ > /i:/ before a consonant and in final position, and the qualitative merger of /ɔ:/ and /o/, and (2) that the radical decrease of frequency cannot only have been due to a generally improved orthographic competence.

It appears, then, that the position of the conservative subdialect was markedly strengthened towards the end of the 4th century. By the middle of the 2nd century some orthographic variations suddenly become frequent, but many remain less frequent throughout the Hellenistic period than they were by the middle of the 4th century. Examples of such are the important ⟨H⟩ ~ ⟨I⟩, and ⟨Y⟩ ~ ⟨I⟩. There is also weaker evidence during Hellenistic times of the loss of the length phoneme than there is during late classical times.

Far from being extinct the conservative subdialect had a position strong enough to expand its use in the Attic population and remain widespread for many more centuries. The conservation of the old phonological system was part of the general cultural conservation in Hellenistic and Imperial times. The deliberate preservation of the traditional pronunciation was probably supported by the demands for euphony in rhetoric and literature²⁷⁾; and thanks to this preservation the old quantitative metre could be maintained in use not only throughout Antiquity but also during Byzantine

²⁶⁾ Teodorsson 1978.

²⁷⁾ The grammarians generally describe the sounds of the language in terms of euphony; it is noticeable that the i-sound is always classed as the least pleasant of the vowels.

times²⁸). Every literate person can be presupposed to have acquired some knowledge of the conservative pronunciation and the traditional principles of the metre. The late emergence of a new metre based on the word accent²⁹) is thus only natural.

Political Development and Linguistic Change

It appears that the innovative phonological subsystem propagated rapidly in the Attic population during the times of the democratic form of government. The frequency rates of orthographic variation indicate that the process was accelerated during the first half of the 4th century. Also other linguistic changes, e.g. in the morphology, are known to have taken place during the upheavals of the Peloponnesian War and the political strifes of that time³⁰). Another outcome of the instability of the situation by the end of the war was the official sanction of the Ionic graphemic system that had already been used by private persons for a long time³¹). To abandon their own, epichoric, writing system was an unprecedented event in the Greek world and also reflects the high prestige of Ionic and its general influence on Attic in the 5th century.

Judging from the evidence of the orthography, the innovative trend was checked in the late 4th century. The reaction appears to have been strongest between that time and the middle of the 2nd century B.C. This period is characterized by weakened democratic, and increased aristocratic and oligarchic power, and by the establishment and flourishing of philosophy and rhetoric.

A close parallel to this evolution is found in the history of the French language. The innovative period of the late Middle Ages and the Renaissance was followed by the strong reaction of the 17th and 18th centuries.

The innovative phonological subsystem of Attic held its strongest position about 350. At that time it was probably used in everyday speech by the majority of the population. This situation probably did not appear again in Athens until the time of Augustus.

²⁸) Cf. Maas 1962: 15.

²⁹) Dihle 1954: 193–196.

³⁰) Cf. Risch 1964: 5–6 and 13.

³¹) This is seen in the inscriptions of the 5th century. It has been suggested (Wilamowitz-Moellendorff 1929: 15; Blass 1892: 302) that even Attic literature was generally written in the Ionic alphabet.

The Origin and Development of Koine

Exactly at the time when it was on the summit of its innovative evolution, the Attic dialect was introduced in Macedonia to be used at king Philip's court, and in his administration and army. The Ionic influence had modified some of its specific features so that it can adequately be called an Aegean Koine. This Attic language form was the one established as the standard in the new overseas states founded after the conquests of Alexander. The influence from other dialects on this standard, the Koine, remained insignificant³²).

A crucial question to be answered when describing the development of the Attic Koine is how it was pronounced, at the beginning of the Macedonian hegemony over the Greek world, and thereafter.

In a comprehensive investigation of the orthographic variation in primary texts, mainly on papyrus, from the Ptolemaic period in Egypt³³), made according to the same principles as the two Attic studies, it was found that some orthographic variations are less frequent in the Ptolemaic Koine of the 3rd century than in Attic during the 4th century. Among others, this is the case with the important variations <H> ~ <I> and <Y> ~ <I>, which remain less frequent than in Classical Attic throughout the Ptolemaic period. However, many orthographic variations show a high frequency from the beginning of the period. Among these are <EI> ~ <I> before a consonant or in final position, and <Ω> ~ <O>. As mentioned above (p. 70) these were the only ones that did not become less frequent in Attic in the 3rd century, thus indicating the accomplishment of the changes /e:/ > /i:/ in the positions in question, and the qualitative merger of /ɔ:/ and /o/, even in the conservative subdialect.

Thus the Ptolemaic orthographic data indicate that the Macedonians adopted the conservative phonological variant of Attic as the official standard. Besides this, they also received the innovative subsystem, apparently as being used in informal speech. Consequently, both phonological variants came to be exported to the new Greek states in the East, and propagated throughout the old Greek countries.

³²) Only in the old Greek countries or, more exactly, the Doric regions, was the Attic standard challenged in the early Hellenistic period by other standards (cf. Bartoněk 1973) and was thus obviously influenced by these dialects (Rohlf 1950; Tsopanakis 1955; Kapsomenos 1960).

³³) Teodorsson 1977.

The Greek Koine developed very equally in all the distant regions of its extensive area. There was no such divergency into different languages as in the evolution of Latin, although there certainly existed local varieties.

This uniform evolution seems to presuppose two conditions:

(a) the origin of Koine must have been *one* well-defined language form, not many different dialect forms, and

(b) the phonological evolution of Koine must have been prepared and initiated in the parental language *before* it was exported to the overseas countries and propagated all over the old Greek-speaking region.

Both conditions actually existed. Firstly, there is no reason to question³⁴⁾ that the parental language form underlying Koine was exactly the Aegean Koine, i.e. the Attic of the late classical times, with its Ionic elements probably already being integrated.

Secondly, the orthographic studies discussed in this paper have shown that the phonological evolution of Ancient Greek that lead up to the modern stage did begin before the time of Koine, in Classical Attic. The Attic vowel system had undergone profound changes, and in the consonant system the evolution had been initiated and coming changes had been prepared³⁵⁾. Late classical Attic had been programmed, as it were, for the coming phonological evolution in Koine.

The evolutionary programme ran uniformly and unyieldingly all over the Koine area. Unlike in French under the *Ancien Régime*, the innovative development could not be checked, but the universal accomplishment of the phonological changes could only be delayed for a longer or shorter space of time, although the conservative resistance was strong, particularly in Athens.

The emergence of a standard language, a koine, means a process of convergence. Any language form developing into an overregional standard will have to give up some of its specific (i.e. diverging in relation to other language forms) features and possibly accept some influence from competing dialects. This also happened to Attic. But in comparison with the Doric Koines of the early Hellenistic period these modifications and adaptations were quite insignificant in Attic. And, what is especially striking, there were no modifications at all in the phonology of Attic when it developed into Koine,

³⁴⁾ Discussion and references Teodorsson 1977: 25–29.

³⁵⁾ For details, see Teodorsson 1978.

which was the case with the Doric Koines³⁶). There was only a temporary and partial delay in the evolution of its phonology.

This fact is a indication, on the one hand of the strong position and high prestige of the Attic dialect in late classical times, on the other hand of the strong position of its innovative phonological subsystem at that time. Its use was not confined to some insignificant social group of humbler status but was a wide-spread colloquial standard used in everyday life by broad groups of speakers. Otherwise it could not have been established as such among the Macedonians but would have remained a sort of Athenian cockney without any influence whatsoever on the later development of Greek.

References

- Anderson, J. M. 1973. *Structural Aspects of Language Change*. London.
- Bartoněk, A. 1966. Divergenz und Konvergenz im Griechischen. *Sborník Prací Filosofické Fakulty Brněnské University*, E 11: 83–88.
- 1973. Die Koine-Formationen in der frühhellenistischen Periode. *Soziale Probleme im Hellenismus und im römischen Reich. Akten der Konferenz 1972*: 237–243. Praha.
- Blass, F. 1892. *Palaeographie, Buchwesen und Handschriftenkunde*. (Handbuch der klassischen Altertumswissenschaft I².) München.
- Dihle, A. 1954. Die Anfänge der griechischen akzentuierenden Verskunst. *Hermes* 82: 182–199.
- Gauchat, L. 1905. L'unité phonétique dans le patois d'une commune. *Aus Romanischen Sprachen und Literaturen. Festschrift Heinrich Morf ... dargebracht*: 175–232. Halle.
- Hermann, E. 1929. Lautveränderungen in der Individualsprache einer Mundart. *Nachrichten der Gesellschaft der Wissenschaften zu Göttingen, Philos.-hist. Klasse*: 195–214.
- Kapsomenos, S. G. 1960. Die griechische Sprache zwischen Koine und Neugriechisch. *Berichte zum XI. Internationalen Byzantinisten-Kongreß, München 1958*. Nachdruck 1960.
- Labov, W. 1972. *Sociolinguistic Patterns*. Philadelphia, Penn.
- Leumann, M. 1977. *Lateinische Grammatik. Erster Band. Lateinische Laut- und Formenlehre*. (Handbuch der Altertumswissenschaft II: 2, 1) München.
- Maas, P. 1962. *Greek Metre*. Transl. by H. Lloyd-Jones. Oxford.
- Martinet, A. 1955. *Économie des changements phonétiques*. (Bibliotheca Romanica, Ser. I: 10.) Berne.
- Mayser, E. 1906. *Grammatik der griechischen Papyri aus der Ptolemäerzeit*. Bd. 1. *Laut- und Wortlehre*. Leipzig.

³⁶) This is not in accordance with the view of Bartoněk (1966: 85) that the convergent tendencies of a developing koine emerge quite independently of the internal, specific evolution of the "pure" dialect.

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- Mayser-Schmoll. 1970. *Grammatik der griechischen Papyri aus der Ptolemäerzeit*. Bd. 1. *Laut- und Wortlehre*. 1. Teil: *Einleitung und Lautlehre*, von E. Mayser. 2. Aufl. von H. Schmoll. Berlin.
- Meisterhans, K. 1900. *Grammatik der attischen Inschriften*. 3. Aufl. von E. Schwyzer. Berlin.
- Moulton, W. G. 1961. The short vowel systems of Northern Switzerland. *Word* 16: 155–182.
- 1962a. Lautwandel durch innere Kausalität: die ostschweizerische Vokalspaltung. *Zeitschrift für Mundartforschung* 28: 227–251.
- 1962b. Dialect geography and the concept of phonological space. *Word* 18: 23–32.
- Penzl, H. 1957. The evidence for phonemic changes. *Studies presented to Joshua Whatmough*: 193–208. The Hague.
- Risch, E. 1964. Das Attische im Rahmen der griechischen Dialekte. *Museum Helveticum* 21: 1–14.
- Rohlf, G. 1950. *Historische Grammatik der unteritalienischen Gräzität*. (Sitzungsberichte der Bayerischen Akademie der Wissenschaften, Philos.-hist. Klasse, 1949: 4.) München.
- Schwyzler, E. 1939. *Griechische Grammatik I*. (Handbuch der Altertumswissenschaft II: 1,1.) München.
- Stolz, F. and J. H. Schmalz. 1928. *Lateinische Grammatik*. 5. Aufl. von M. Leumann und J. B. Hofmann. (Handbuch der Altertumswissenschaft II: 2.) München.
- Strohschein, A. 1940. *Auffälligkeiten griechischer Vokal- und Diphthong-schreibung in vorchristlicher Zeit*. Diss. Greifswald.
- Teodorsson, S.-T. 1973. The front long-vowel phonemes in Classical Attic. *Glotta* 51: 245–267.
- 1974. *The Phonemic System of the Attic Dialect 400–340 B.C.* (Studia Graeca et Latina Gothoburgensia 32.) Göteborg.
- 1977. *The Phonology of Ptolemaic Koine*. (Studia Graeca et Latina Gothoburgensia 36.) Göteborg.
- 1978. *The Phonology of Attic in the Hellenistic Period*. (Studia Graeca et Latina Gothoburgensia 40.) Göteborg.
- 1979. On the pronunciation of Ancient Greek Zeta. *Lingua* 47. In press.
- Tsopanakis, A. G. 1955. Eine dorische Dialektzone im Neugriechischen. *Byzantinische Zeitschrift* 48: 49–72.
- Wilamowitz-Moellendorff, U. von. 1929. *Platon. Sein Leben und seine Werke*. 3. Aufl. Berlin.
- Wyld, H. C. 1920. *A History of Modern Colloquial English*. London.
- Zachrisson, R. E. 1913. *Pronunciation of English Vowels 1400–1700*. Göteborg.