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Development of the consonantal system in ancient Greek dialects

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DEVELOPMENT OF THE CONSONANTAL SYSTEM IN ANCIENT GREEK DIALECTS²⁵¹

Among the phonic changes with the help of which one can classify the dialects of a certain language an outstanding role is played by such changes as leave some perceivable trace in the consonantal system of the language in question. The work of Bartoněk deals, from this point of view, with the system of consonants in Ancient Greek, and to achieve his aim, the author — after two introductory chapters (pages 7—41) — first analyzes the four complexes of phonological changes that have, according to his opinion, resulted in a comparatively marked differentiation of the Greek consonantal system. These were liquidation of the proto-Greek spirants or semiconsonants (chapter III: pages 42—49), palatalization of consonants before j (chapter IV—VI: pages 50—76), liquidation of labiovelars (chapter VII: pages 77—80), and spirantization of voiced or aspirated explosives (chapter VIII and IX: pages 81—99). The common feature, characterizing all these changes was very likely a general tendency in Ancient Greek to weaken the articulation of consonants, a fact pointed out by Meillet already.^[48]

In the second part of his work the author first discusses the differentiation of the consonantal system in Ancient Greek from the assumed proto-Greek state down to the middle of the 4th cent. B. C., the time, when the single dialects display a very marked tendency to grow into the Hellenistic Koine (chapter X: pp. 100—113). The development of this systemic differentiation is best to follow on Table-Series 1 (pp. 184—193). One can see clearly how old genetic ties were gradually overlapped by newer geographic connections. How far this process of overlapping got in the end, the reader will be able to understand from the synchronic analysis of the consonantal systems of the single Greek dialects about 350 B. C. (chapter XI: pp. 114—121; see also Table 2 on p. 194 sq.). The work ends with chapter XII (pp. 122—125) summarizing the classification results obtained by the foregoing analyses of the consonantal system.

²⁵¹ There are two kinds of notes referring to the English summary: direct and indirect. The direct ones continue the numbering of the Czech and Russian notes and are placed under the English text. The indirect ones are mere references to Czech notes that will be intelligible even to those not accustomed to read Czech; they are chiefly references to consulted literature and are indicated by numbers in square brackets, e. g. [48]. Further, in order to assist the reader in following the less simple Czech notes, a plus-sign or a cross is frequently added to the numbers in brackets; the cross serves to indicate a view considerably differing from, or perhaps even contradictory to, those held by the author of the present study, whereas the plus-sign indicates views or additional material that may be regarded as being in agreement, or perhaps supporting, the present author's conclusions.

Now, a detailed English survey of chapters III—XII is added in order to give the foreign reader necessary information especially for understanding Tables 1 and 2.

III a) The liquidation of the IE. *j* was a change which was accomplished in all Greek dialects,¹⁵⁰¹ having in all of them, in the beginning at least, precisely the same results in each respective place it was assuming in the word. Thus the initial *j* gave in certain words *h* (e. g. $\delta\zeta < *jos$),²⁵² while in others we find it replaced by the same substitute as the proto-Greek *dj*, *gj* (cf. $\zeta\upsilon\gamma\acute{o}\nu < *jugom$); the latter type is the only case where the liquidation of the phone *j* is accompanied by increased and not weakened articulation. The intervocalic *j* was first changing into *h* and later disappearing altogether, while the post-consonantal *j* caused palatalization of the foregoing consonant, a phenomenon that we shall deal with later. Thus in all Greek dialects the liquidation of the phone *j* meant for the consonantal system the loss of one phoneme, yet this loss found multiple compensation in the fact that through the influence of the post-consonantal *j* a number of new phonemes originated.

As to the time of liquidation of the phone *j*, it should be pointed out that the process need not have been simultaneous either in all the dialects or in all the respective places in the word. Formerly this change was supposed to have been a phenomenon of the proto-Greek stage,¹⁵³ but this view was later greatly upset by the occurrence of the Mycenaean initial *j*- in the pronominal stem *jo*.¹⁵⁴ (e. g. *jo-i-je-si = jō(d)*^{252a}, ¹⁵⁵ *hiensi*).²⁵³ Anyhow, you can hardly resist the impression that

²⁵² When quoting we use here the Greek alphabet only when we reproduce verified forms of Greek words (e. g. $\beta\acute{\alpha}\lambda\omega$), and when we give phonic transcription of Greek expressions written in the original in Cyprian syllabic spelling (e. g. $Z\acute{o}F\acute{\epsilon}\zeta$). In all other cases we use Roman letters (when quoting non-verified forms of Greek words, such as **banjō*; when giving the pronunciation of verified Greek forms, e. g. [*theozdoteios*] — the expression is to be found in square brackets; when presenting mere graphic transliteration of Greek expressions written in the original in Linear script B or in Cypriot syllabic spelling, such as *jo-a-mi-ni-so-de* or *zo-we-se*; when giving phonic transcription of Greek expressions written in Linear script B, such as *jō(d) Amnisonde*; when quoting non-Greek expressions, e. g. skr. *tráyas*); in some of these cases, as we have just indicated, italics are employed. Italic Roman types are also employed when different morphological elements are quoted (e. g. *-ti-*, *-si-*), or single phones and phonic combinations (e. g. *p*, *b*, *f*, *tw*). When giving independent phonemes we do not employ for technical reasons oblique brackets, such as */p/*, the context itself, however, makes it clear whether the phonic symbol represents in its respective place an independent phonematic unit, a mere combinatory variant of a phoneme, or maybe only the assumed pronunciation. — On the other hand, when the graphic symbols corresponding with respective phones or phonic combinations are to be presented, capital signs of the Greek alphabet are regularly employed (e. g. “the Greek Z was pronounced in several Greek dialects as *dz*”). Roman capitals are used when reproducing transliteration of single signs of Linear script B (e. g. QA).

^{252a} Contrary to the opinion, according to which the initial pronominal *jo*- is to be interpreted as *ho-*, the original *j* being already transformed into *h* (see e. g. Ventr.-Chadw., *Documents* 79 and 207, or Vilborg, *A Tentative Grammar* 48 and 127), we adhere to the views of those who see in this *jo*- a proof of the preservation of *j* in Mycenaean (see e. g. Risch, *MH* 16, 218, Galiano, *Diecisiete tablillas* 127).

²⁵³ The older opinion of A. J. Evans, referring the Knossos LB tablets to the close of the 15th cent. B. C. (whereas the Pylos as well as the Mycenae tablets belong without any doubt to the 13th cent. B. C.), has recently been opposed by the view that all the three most important groups show no substantial difference in chronology (cf., to some extent, Blegen, *Minoica* 61—66, and especially L. R. Palmer, *Aegean Prehistory*). Although the recent view has not yet received general acceptance, we shall prefer to assign the LB tablets to the middle of the latter half of the

the degree of coordination prevailing in the single Greek dialects in reference to this change, when its phonetic outcome is reviewed, was rather determined by the general tendency in the whole Greek speaking world to liquidate the phone *j* than by any immediate contact of the dialects with one another.

In the subsequent development Greek did not produce an independent phoneme *j* any more. The Cyprian and Pamphylian indications of this phone in the hiatus after foregoing *i* (e. g. the Cyprian *we-pi-ja* = *Ἐπιῖα* [ca. 450],^{253a} and the Pamphylian *duá* [IV]) are most likely mere graphic reproductions of a sound of transition originating in such hiatuses in other Greek dialects as well (cf. e. g. the Ionic *εεῖῖα* [450]).⁽⁶⁸⁺⁾ Similarly, *j* that originated through spirantization from *g* was a mere combinatory variant of the spirant *γ*.

III b) Another very early sign of the weakening of consonants was the change of the initial antevocalic and of the medial intervocalic *s* in *h*. Also this change was accomplished in all Greek dialects indiscriminately,⁽⁶⁹⁺⁾ including this time consistently even Mycenaean. This indicates that the change occurred — at least in Mycenaean and dialects drawing upon it — at an even earlier date than that which witnessed in Mycenaean the complete liquidation of the initial *j*.

This change was succeeded by another change, whose outcome was the liquidation of any *h* whatsoever, no matter whether it originated from the initial *j*, or from the initial antevocalic *h*, or the medial intervocalic *h*. In the intervocalic position this change was accomplished in all the classical dialects as early as in the prehistoric era, whereas the same process in the beginning of the word, before a vowel, was still partly going on in the historical times. We miss the initial antevocalic *h* in the earliest written documents in the Ionic of Asia Minor,⁽⁶¹⁺⁾ in Lesbian,^(62x) Cyprian,^(63x) Elean,⁽⁶⁴⁺⁾ and in Central Cretan,^(65x) while in the rest of the Greek dialects⁽⁶⁶⁺⁾ — the Ionic of the Cyclades and Euboean probably excepting — *h* was evidently maintained, in spite of some anomalies, down to the Hellenistic era.

In Mycenaean it is still preserved here and there both as the initial antevocalic and the medial intervocalic *h*. It is not without interest that *h* can be graphically demonstrated here — in limited number of cases — only in texts from Pylos and Mycenae (cf. e. g. *a₂-te-ro* = *hateron* [cf. Attic *ἔτερος*], *me-zo-a₂* = **megjosa* > *-oha* [cf. *μεῖζω*], *pa-we-a₂* = *pharweha* n. plur. [cf. *φᾶρος*]), while in the documents from Knossos sign *A₂* is nearly quite absent.^(67, 68) From the phonological point of view the loss of the intervocalic *h* practically meant that the phone *h* ceased to be an independent phoneme even in those dialects in which it was still initially pronounced, changing

second millenium B. C. Obviously, in case Evans's view should remain valid, the wording of some of our conclusions would have to be somewhat altered in regard to chronology. This would, however, in no way affect our argument. (According our most recent information, Palmer's hypothesis was very seriously criticised in the last months; see esp. *Minutes of the Mycenaean Seminar of the Institute of Classical Studies of the University of London* from the 8th February 1961 (pp. 229—233) and S. Hood, *The Date of the Linear B Tablets from Knossos, Antiquity* 35 (1961), 4—7. Thus, the date of 1400 B. C. must be taken again for the upper time limit of the preserved Mycenaean documents, and owing to this, we have made some necessary alterations in the text directly before the book appeared.)

^{253a} When quoting inscriptional material of the post-Mycenaean period, we always state here the assumed date of origin. The place of origin, and the source of quotation, however, are given only in the Index on pp. 205 sqq.. The Index also contains full references concerning both the LB expressions and those occurring in literary texts. (We regret to have to point out that some of the most recent editions of Greek inscriptions have remained inaccessible to us, this applies especially Guarducci's *Inscriptiones Creticae* and various new editions of East Aegean Doric inscriptions. This also explains why in stating the dates of origin of archaic Central Cretan inscriptions we employ only the abbreviations "litt. vet." and "litt. vetust.") See also Note 322a.

in the form of ζ into one of the two possible signals of a vocalic beginning of a word,¹⁶⁹ the second of them being a mere glottal stop ʔ . In dialects where this double possibility of designating the vocalic beginning of a word was not preserved, i. e. where even the initial h disappeared, we could hardly ascribe the liquidation of this phone to some common isogloss. It is true, a limited and partial assertion of a thing like that can be admitted to have taken place in the Aeolic-Ionic part of Asia Minor, but in all the other dialects an altogether independent development may rightly be assumed. At the same time it is worth noticing that all the above mentioned five dialects belong almost exclusively to the periphery of the Greek speaking world, or were spoken in regions exposed to some other geographic isolation, in a word, they are bound to places where the substratum influence of the pre-Greek population could assert itself most strongly.

Just as we have evaluated the rough breathing in those dialects in which the initial h did not disappear, analogically it would be necessary to evaluate, at least from the historical point of view, also H in spellings ΛH , MH , PH , FH found in the beginning of words in some of the Greek dialects, that is to say, in Megarian (MH : $M\eta\gamma\alpha\rho\epsilon\upsilon\varsigma$ [V]),¹⁷³⁺ Corinthian and Corcyraean (MH : $M\eta\epsilon\iota\varsigma\iota\omicron\varsigma$ [VI]), ΛH : $\Lambda H\omicron\nu\tau\iota\varsigma$ [VI?], PH : $\rho\omicron\text{F}\alpha\iota\alpha$ [VI]), Argolic (ΛH : $\lambda\alpha\beta\acute{o}\nu$ [ca. 500?], FH : $F\eta\epsilon\delta\iota\epsilon\sigma\tau\alpha\varsigma$ [VI]), Attic (ΛH : $\lambda\eta\acute{o}\nu$ [?], MH : $\mu\eta\epsilon\gamma\acute{\alpha}\lambda\omicron$ [VI]), Boeotian (FH : $F\eta\epsilon\kappa\alpha\delta\acute{\alpha}\mu\omicron\epsilon$ [VI—V?])¹⁷⁴⁺ and Pamphylian (FH : $F\eta\epsilon$ [IV], MH : $\mu\eta\epsilon\acute{\iota}\alpha\lambda\epsilon$ [IV]).¹⁷⁵⁺

These cases do not very likely represent phonematically independent aspirates lh , mh , rh , wh , as Brandenstein thinks,¹⁷⁰ but again merely ζl , ζm , ζr , ζw as one of the two possibilities how to mark in pronunciation the beginning of a word whose initial phone was l , m , r or w — provided, of course, that there originally existed a foregoing s .^{171+ 72+} As our enumeration indicates, the occurrence of this phenomenon was restricted — if we do not include Pamphylian — to dialects in the east part of the Gulf of Corinth, i. e. to the region which witnessed a long lasting preservation of the initial antevocalic non-phonematic contrary ζ : ʔ as well.

Some of the Greek dialects, however, produced through time another h in medial position, even if this change was to be just a temporary one. The secondary intervocalic s followed namely in the historical era in the footsteps of its prehistoric predecessor, got first transformed into h , and later disappeared altogether. Material demonstrating this change comes chiefly from Laconica (e. g. $\nu\acute{\iota}\chi\acute{\alpha}\eta\alpha\varsigma$ [V med.])¹⁷⁶⁺, $M\acute{\omega}\alpha$ Aristoph., $\mu\acute{\omega}\acute{\alpha}$ Hesych.),¹⁷⁷⁺ from Argolis (even though only from Argos, Mycenae, and Heraeum:¹⁷⁸⁺ e. g. $\epsilon\pi\omicron\iota\epsilon\epsilon$ [VI], $\epsilon\pi\omicron\lambda\text{F}\epsilon\eta\epsilon$ [V]), and, to a smaller extent, also from Elis (e. g. $\acute{\alpha}\delta\epsilon\alpha\lambda\tau\acute{\omega}\eta\alpha\epsilon$, $\phi\upsilon\gamma\alpha\delta\epsilon\upsilon\acute{\alpha}\nu\tau\iota$ [both ca. 350]), from Cyprus (e. g. $\rho\omicron\text{-e-ko-me-no-ne}$ = $\rho\omicron\epsilon\chi\acute{o}\mu\epsilon\nu\omicron\nu$ [ca. 450]),¹⁷⁹⁺ from Pamphylia (e. g. Hesychios's gloss $\acute{\upsilon}\lambda\omicron\gamma\omicron\varsigma$ $\sigma\tau\epsilon\rho\acute{\alpha}\tau\omicron\varsigma$. $\Pi\epsilon\rho\rho\alpha\iota\omicron\iota$), and a few samples come also from East Aegean Doric ($M\epsilon\lambda\epsilon\acute{\iota}\pi\pi\omicron\nu$ [Thera, II init.]), $\text{A}\rho\epsilon\acute{\iota}\pi\omicron\lambda\iota\varsigma$ [Anaphe-Astypalaea, 100]). Neither did this secondary intervocalic h possess the quality of an independent phoneme, as it appears to have been only a combinatory variant of s , linked up with its vocalic neighbourhood.

It is not possible to fix with certainty the time when this h was altogether dropped, but it appears to have been pronounced, at least to a certain extent, in all the above-mentioned dialects as late as 350 B. C.

As to the mutual relationship of the dialects characterized by the change $-s > -h > \theta$, Thumb's explanation, ascribing this phenomenon originally to the population residing in Peloponnesos before the arrival of the Dorians,¹⁸⁰ is not too convincing, specially when we take into consideration the fact that the change can be demonstrated in Cyprus, but not in Arcadia. The transformation of the secondary $-s$ into $-h$ occurred very likely quite independently in each of the dialects concerned. The only feature they appear to have had in common in this connection was the geographic fact of their more peripheral and isolated situation, permitting the general Greek tendency towards consonantal reduction to assert itself here with greater force. As to Argolic, a special explanation would have to be found, owing to its relatively central position. It is also worth noticing that most of the dialects affected by this change were not identical with

those in which the old initial *h* was disappearing without leaving any trace behind it. Thus, for instance, Laconian still preserved its *ɣ* at a time when the new secondary intervocalic *h* did not exist in it any more. The only two Greek dialects in which both psilosis and the change *-s- > -h-* had occurred by 350 B. C. were Cyprian and Elean.

III c) Finally it was the turn of *w* to be disappearing sporadically from the pronunciation in Greek dialects. This process can be traced back to as early a date as the Mycenaean era. On the Mycenaean tables certain indications of this change can be demonstrated, specially before *o* (cf. e. g. *o-pe-ro-te = ophēlontes*);¹⁸¹ in a great majority of cases, however, *w* is still preserved here. As to the classical Greek dialects, sign *Ϝ* is missing from the very beginning in the preserved written material in the Ionic of Asia Minor and in East Aegean Doric, while at the time of the Aeolic lyrical poets *w* was very likely no longer pronounced even in Lesbos,¹⁸² and most probably it disappeared prior to 600 B. C. even in the Ionic Cyclades, Euboea, Attica, and in the succeeding two centuries in Megaris and Corinth, as well. (A tendency towards liquidating *w* can be noticed, however, in the other Greek dialects, too.) It is, therefore, possible to join most of the dialects in which the early liquidation of *w* was an extra conspicuous process by a single isogloss, whose focus was probably somewhere in Ionia. Through the loss of this phone the consonantal system of these dialects was deprived of an independent phoneme, but this process was making headway towards attaining a higher degree of systemic balance instead of impairing it, for after the general liquidation of *j* the phone *w* found itself in the consonantal system isolated.

Now, if in some of the Greek dialects *w* still asserted itself in initial position subsequent to 350 B. C., it was the case most frequently in the so-called spirantizing dialects (cf. further pp. 155 sqq.), in which the existence of the phoneme *w* did not upset the systemic balance in the very least, for this phonic quality evidently absorbed in the course of time the *b* which originated from *b* through spirantization.²⁵⁴ This holds good apparently in reference to Laconica, Elis, Boeotia, Argolis, Central and Western Crete and Pamphylia. On the other hand, further preservation of the phoneme *w* side by side with the evidently explosive *b* in the North-West dialects, in Arcadia, Cyprus, and most likely also in Thessaly will have to be ascribed, in all probability, to considerable isolation of these conservative dialects.

When summing up, we may, therefore, declare in reference to the proto-Greek *s, j, w* that the general tendency of the Greek consonantal system appears to be an effort to reduce radically the number of these phones as independent phonemes.

IV. The liquidation of the phoneme *j* called forth a complex of palatalization changes, affecting those consonants which immediately preceded this phoneme. Diver and Stang are very likely right in asserting that in this way nearly every single consonant of the proto-Greek consonantal system found its palatalized counterpart with the associated character of a geminate (e. g. *ʔʔ*). Not quite so certain is the independent phonematic existence of non-palatalized geminates (e. g. *tt*), as postulated practically without any restriction by Diver, and rejected — as far as the explosives are concerned — by Stang.²⁵⁵ But even Stang's theory, ascribing an independent phonematic character to the geminated *ll, rr, nn, mm* only, lacks sufficient foundation. Stang namely supposes that pre-dialectic origin must be ascribed not only the proto-Greek gemination of the type *kten'n'ō < *ktenjō*, which view is upon the whole justified, but also the gemination type *ἔκτεννα < *ektensa*, which can be demonstrated in the historical era in Thessaly and Lesbos.^{187x1} But more common is the contradictory view, according to which the latter of the two geminations displays merely a specific Thessalian and Lesbian dialectic character.¹⁸⁸⁺¹

²⁵⁴ The phonic values *w* and *b* stand for one bilabial spirant. For the sake of lucid argument we have employed a double designation here, and shall occasionally do so also later.

²⁵⁵ See Diver, *Word* 14, 8, and Stang, *Symb. Osloen.* 33, 33 sqq., both the articles being written independently.

The more common standpoint finds support in the part played by the geminated *ll* in Greek dialects. Irrespective of different assimilations — specially in the morphological seam — *ll* can be demonstrated apart from Thessalian and Lesbian as a substitute for *lj* only (it originated very likely from *lj* through the medium of geminated palatalized *ll'*; in Cyprian no *ll*, of course, is found at all). In contrast to it, the Thessalian and Lesbian *ll* could have arisen not only from *lj*, but also from the groups *ls*, *sl*, which in the other Greek dialects — evidently not through the intermediate stage of the geminated *ll*, but rather through *lh*, *hl* — got simplified into *l*, the preceding vowel being subjected to compensatory lengthening at the same time. (The compensatory lengthening of the type **selasnā* > *σελᾶνᾶ* meant probably nothing else but an analogy of the loss of intervocalic *s*, for the neighbouring liquids and nasals, being very sonorous sounds, apparently made it possible for the phoneme *s* to behave in their vicinity just as if its surrounding were purely vocalic.) The just described change was not effected in Thessalian and Lesbian only. These dialects transformed that which still was either *ls*, *sl* or at least *lh*, *hl* in such a way that the resulting phones in question fused in the course of time with *ll* originating through depalatalization from *ll'*. This Lesbian-Thessalian innovation should thus be ascribed archaic character, if we consider the preservation of its prosodic consonantal “position” in comparison with the compensatory lengthening in the other dialects.

The improbability of a special monophonematic geminate *ll* existing for the time being in the function of a substitute for *sl*, *ls* even outside Thessalia and Lesbos becomes pretty obvious also in the light of the fact that the assumption of this substitute would mean that outside these two regions first the change *ll* > *l* must have taken place with the lengthening of the foregoing vowel, to be followed only somewhat later (excepting Cyprus, of course) by the depalatalization *ll'* > *ll*, for *ll* which originated in this way did not undergo any further simplification. And such sequence of development could hardly be considered as probable.

From the above discussion it may be concluded that the proto-Greek consonantal system — immediately after the accomplished palatalization — presented most likely the picture which is described in the Czech text on page 52.

As to further development of the proto-Greek palatalized consonants, it may be pointed out that the process of depalatalization took several forms: 1) One possibility implied the transformation of the contrast in palatality (with an associated non-phonematic difference in gemination), cf. for instance the contrast *l* : *ll'*, into a phonematic gemination contrast, i. e. into *l* : *ll*; this was the case with all liquids and nasals in Thessaly and Lesbos (cf., e. g., the type *κτένω*), and with *ll'* in all the other Greek dialects with the exception of Cyprus. 2) Another possibility is that a simple non-palatalized consonant originated in the course of depalatalization, but the liquidation of palatalization gave rise in the preceding syllable to an *i*-diphthong (the so-called epenthesis), or to a lengthening of vowels *i*, *u* (the latter being, as a matter of fact, just a specific outcome of epenthesis). This occurred in Cyprus with all the four liquids and nasals (as to the original *lj*, cf. for instance the Cyprian *a-i-lo-ne* = *αἰλόν* [ca. 450];¹⁹²⁺¹) but also the sporadical *αἰλότρυα* [VI] in Elis should be noted), while in all the other Greek dialects, except Thessaly and Lesbos, it affected the older *r'r'*, *m'm'*, *n'n'* only. 3) The third possibility was that the proto-Greek distinctive contrast between the non-palatalized and the palatalized consonant got preserved in that the palatalized consonant was transformed into some affricate or spirant (with the voiceless dentals and velars), or even into a consonantal group (with palatalized labials). — Considering, however, that further development of palatalized labials is in no way important for the classification of ancient Greek dialects (*p'p'* got transformed in all of them into the consonantal group *p+t*,²⁵⁶ while the existence of the palatalized *b'b'* in proto-Greek cannot be verified), and considering the fact that all has been already pointed out about the dialectic substitutes for the palata-

²⁵⁶ See Note 262.

lized liquids and nasals that bears upon our problems, we shall henceforth deal with the substitutes for the palatalized dentals and velars only.

The chief characteristic feature of further development of these proto-Greek phones was that, on the one hand, in all the Greek dialects all voiceless palatalized dentals and velars, whether with or without aspiration, fused, while all the voiced palatalized dentals and velars likewise fused, on the other hand. The differences between single dialects consisted partly in the fact that the development of the affricates or spirants originating from palatalized dentals and velars did not proceed with the same rapidity in all of them, but chiefly in that these sounds in some of the dialects gradually changed into geminated non-palatalized explosives. Thus we find in place of $t(h)j$ and $k^{(w)}(h)j$ ²⁵⁷ (and also in place of tw) in some dialects of the classical era the explosive sign $T(T)$ ²⁵⁸ (phonetically it probably means tt),^[97x] $T\Theta$ and $\Theta(\Theta)$ ($= tt\theta?$), while in others the continuant spelling $\Sigma(\Sigma)$ ($= s(s)$), or T , I , Ψ ($= ts?$);^{258a} in place of dj and $g^{(w)}j$ ²⁵⁷ (and also of j -) we find, on the other hand, in one group of dialects the explosive $\Delta(\Delta)$ ($= d(d)$),²⁵⁹ or $T(T) = t(t)$,²⁶⁰ while in the other group the continuant Z ($= dz$) or its graphic variants I , F , representing the same value,²⁶¹ or some other continuant spellings.

As we can see from Table on page 55,^{261a} all the dialects do not apply either the explosive or the

²⁵⁷ For the sake of simplicity, the rather complex $k^{(w)}(h)j$, $g^{(w)}j$ will further be denoted as khj , gj .

²⁵⁸ The form $T(T)$ just as three other forms to be mentioned later, i. e. $\Sigma(\Sigma)$, $\Delta(\Delta)$, $\Theta(\Theta)$, represent here the possibility of employing either of the respective two spellings, no matter whether this double possibility actually asserted itself in the preserved documents of each dialect or not. In initial position we find nearly always a single letter (exception to this rule is the Central Cretan initial TT in $T\tau\eta\nu\alpha$ (II init.) — besides the more frequently occurring $T\eta\nu\alpha$ — cf. also Note 260); in the middle of the word the geminated spelling is, no doubt, the “appropriate” phenomenon, at least from the phonetic point of view, yet even here we find pretty often — and in the archaic era sometimes rather regularly τ — a single sign. — From this purely graphic unsettled condition it is, of course, necessary to distinguish the real phonetic difference between s and ss , as it is manifested in the contrary spelling $\Sigma : \Sigma\Sigma$ in the East Greek dialects (see further pp. 148sqq.).

^{258a} On T and Ψ see more on pp. 148sqq.; on the archaic Central Cretan I see p. 146.

²⁵⁹ This phonetical value is reproduced with $d(d)$, because the geminated $d(d)$, originated from dj , gj , j , was losing its gemination in initial position.

²⁶⁰ Similarly, $t(t)$ is used in denoting the “inappropriate” Central Cretan pronunciation of $t(t)$, which since the 4th cent. B. C. appeared as substitute for the “appropriated” Central Cretan $d(d)$, which may be traced back — as we already know — to proto-Greek dj , gj , j -; cf., e. g., again the Central Cretan pair $T\tau\eta\nu\alpha$ (II init.): $T\eta\nu\alpha$ (more frequent) with the just mentioned substitute being used initially. — In those cases, however, in which tt is to be traced back to proto-Greek $t(h)j$, $k(h)j$, we do not use the brackets in denoting the pronunciation, as the initial occurrence of such a substitute for the mentioned proto-Greek sounds has nowhere been established.

²⁶¹ In quoting Greek words we do not distinguish between the signs Z , I and F and use Z (or ζ).

^{261a} For non-Czech readers we give the translation of the Czech Notes [95a]—[95i]:

[95a] The spellings in brackets are only our conjectures. — On our Table we do not take into consideration: i) the expressions which are due to the influence of epic poetry, Hellenistic Koine etc.; ii) the simplifying tendencies in archaic spelling which was reproducing the geminates in medial positions of the words by simple characters; iii) the fact that the geminate substitutes for proto-Greek palatalized dentals and velars were losing their gemination when occurring initially (let us add to Notes 258 and 260 that in the $\Sigma\Sigma$ -dialects even initial $k(h)j$ - and tw - and sometimes perhaps even $t(h)j$ have been found reproduced by the sign Σ); iv) the sporadical occurrence of $\Delta(\Delta)$ in Megarian, Rhodian, Corinthian, Cyrenaean, and Phocian (see p. 152).

continuant signs respectively with complete consistency. In both the voiced and the voiceless sets it is only Boeotian that is quite consistent in using the explosive signs, the same being probably true in the historical era also in Thessaliotis (cf. the Boeotian *δπόττα* (often), *τραπέδδαζ* (222-200), as well as the Thessaliotic *ἐξξανακά(δ)δέν* [V]; a reliable Thessaliotic demonstration of *T(T)* is missing, but cf. *Πετθαλοῦν* [Kierion, II], which is, however, demonstrated not only in Thessaliotis but also in Pelasgiotis [Larisa, 214]).^{261b} As to the Boeotian *tt*, *d(d)*, it was not a direct continuation of the proto-Greek *t't*, *d'd*, but surely passed through an intermediate affricate stage: this may be concluded from the fact that Boeotian uses *tt* also for the original *t+s*, *d+s*²⁶² (cf. *ἐπεψαφίττατο* > **dsato* [III pars extr.]).^{262a}

On the other hand, a great majority of Greek dialects,²⁶³ the Ionic of Asia Minor and of the Cyclades including, use in both cases the continuant signs (cf. the Ionic *μέλισσα* : *τράπεζα*; we do not propose to deal here with Ionic, Attic, Arcadian, and Pamphylian forms, such as *δσοζ* with simple *Σ* [consult page 148]). A special place among these dialects of the consistent type occupies Central Cretan, for in its earliest phase it is a dialect of continuant substitutes, whereas later its substitutes assume the explosive character (*δζοι* [litt. vetust.]: *Ἔργαζε*²⁶⁴ [litt. vetust.]; *δπόττοι* [ca. 450]: *δικάδδεν* [ca. 450]; or even *δθθάκιν* [IV]: *Ττῆνα* [II init.]).²⁶⁵

[95b] As for the "monomorphematic" *t(h)j* and "polymorphematic" *t(h)-j*, see p. 149.

[95c] By the sign *Z* even *I* occurring in a number of dialects is implied.

[95d] But in Homer and archaic Ionic poetry this *Σ* alternates with *ΞΣ*.

[95e] This spelling is found in Cyprian glosses. See Bechtel, *GD* I 415.

[95f] The difference between Thessaliotic and the other Thessalian sub-dialects refers only to the substitute for *dj*, Thessaliotis having *ΔΔ*, whereas the rest of Thessaly has *Z*, *ΞΖ*.

[95g] As for the spelling *TΘ* (instead of *TT*) for *th+s* in *Πετθαλοῦν*, see Note 261b.

[95h] In the East Aegean Doric area, The sign *Ϝ* occurs only in Thera.

[95i] The geminate spellings *ΔΔ*, *ΤΤ* for *j*-appear, of course, only in compounds; our table, however, for technical reasons, gives these spellings also in cases, where only *Δ*, *T* can be demonstrated.

(Let us add that in Boeotian the medi *TT* standing for *-k(h)j-*, *-tw-* corresponds either with the initial *Σ* (for *k(h)j-*) or with *T* (for *tw-*)).

^{261b} Of course, let us add that in the quoted *Πετθαλοῦν* the spelling *TΘ* (instead of *TT*, for *Πετθαλοί* probably originated from *Φετθαλοί* by the metathesis of aspirates) goes back to the original *th+s* (cf. Bechtel, *GD* I 154). Nevertheless, we take for very probable, owing to the *dd* substituting the original *dj* in *ἐξξανακά(δ)δέν*, that at least in Thessaliotis the value *tt* was a regular substitute for both *t(h)+s*, *d(h)+s*, and for *t(h)j*, *k(h)j*, *tw*.

²⁶² The transcriptions *t+s*, *d+s*, just as *s+s* and *z+d*, *p+t*, *k+s* and the like have been used in this work, because we think it advisable to differentiate the polyphonematic character of these consonantal groups (e. g. in **elpid-si* > *ἐλπισι*) from monophonematic units like *ts*, *dz*, *ss*, which sprang up just from palatalized dentals and velars. However, with groups whose second part is *j* or *w*, e. g. with *t(h)j* or *tw*, we abstain from doing so for technical reasons.

^{262a} The same holds good also about Central Cretan (see *Ἀρκάθθι* < **tti* < **tsi* > **dsi* [III]).

²⁶³ For reasons given on p. 152 we do not take into consideration Phocian *τῶι θυγῶι* (ca. 600), Megarian *μᾶδδαν*, *χρηῆδδετε*, *φαντάδδομαι* Aristoph., Corinthian *Λεύς* (?), Rhodian *Λεύς* (V) and *Ἀριδάλος* (VI?), and Cyrenaean *Ἀλάδδειρ* (ca 200?).

²⁶⁴ The phonetical value *z+d* (cf. Lejeune, *Traité* 97) is altogether out of the question here, for it appears improbable that the same spelling *I* could serve here as a mask for two so phonetically and phonologically different couples as *ts* and *d+z*. When Lejeune mentions in support of his standpoint the fact that sandhi assimilation of the type *ἐδ δικαστέριον* (ca. 450) can be demonstrated in Crete (cf. also *ἐδδικακ[σ]άτῶ* [litt. vet.] with the analogical phenomenon in the morphological seam), it is necessary to point out that the existence of assimilation changes in such positions does not mean that precisely the same changes must have taken place within the morphological unit, as well. Cf. e. g. the Latin *collocō* < **comlocō*, but *exemplum* < **exemlom*.

In all the remaining dialects it is possible to demonstrate in one case the explosive signs and in the other the continuant ones. Thus Attic and Euboean have voiceless explosives and voiced continuants (cf. *μέλιττα* : *τράπεζα*; as to type *δσος* see page 148 again); in the prehistoric Attic and Euboean, however, there existed very likely also in the word for a “bee” a continuant and not an explosive geminate, this being pretty obvious when we compare these dialects with their close relative, the Ionic of Asia Minor and of the Cyclades. As to the sporadic occurrence of *T(T)* or even *TΘ* in non-Thessaliotic Thessalian in the same situation where *T(T)* is found in Boeotian (e. g. Pelasgiotic *πέτταρας*, -a [III pars post.], *Περθ[α]λοῦν* [214]), this is just an exceptional phenomenon, restricted chiefly to ethnical names.⁽¹¹⁷⁾

On the other hand, Laconian and Elean use for the voiceless palatalized dentals and velars continuant signs, whereas for the voiced ones explosives. Cf. Laconian *τόσσος* (Alcm.): *δπι(δ)-δόμ[ενος]* (V ?),⁽¹¹⁸⁺⁾ or even *βλιμάττομες* Aristoph., and Elean *δσσα* (ca. 350): *δικά(δ)δοι* (VI), or even *άττάμων* (ca. 350). In both these dialects, however, we can demonstrate in their earlier stage the continuant sign *Z*, or in Elis its graphic variant *I*, these phenomena being similar to those in Central Crete (see Lac. *Zeū* Alcm., this, of course, not being very convincing; cf., however, also *τερμάζοντι*, *Ζωπύρω* [IV pars extr.], occurring consistently in the dialect of Tarentum and Heraclea, which separated from Laconian about 700 B. C.;⁽¹²³⁾ for Elean cf. *ε̇̇μολιζοι*⁽¹²⁰⁺⁾ [ante 570 aut ante 450] and *Ζενξία[ι]* [ca. 500?]).

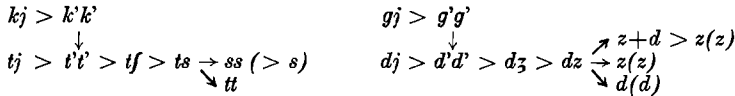
The enumerated facts prove clearly that the above-mentioned explosive geminated substitutes, used for proto-Greek palatalized dentals and velars, did not originate from these proto-Greek phones directly, but through the medium of a continuant stage. First it was above all in Boeotia where the new *tt*, *d(d)* sprang up, this being very likely associated with the fact that in this region the original Aeolic element was exceptionally strongly overlaid with West Greek elements towards the end of the 2nd millenium B. C.; to be sure, these geminates themselves were not of West Greek origin, as Diver wrongly assumes,⁽¹²¹⁾ for, as we have just demonstrated, they begin to appear in West Greek some 500 years later.⁽¹²²⁾ The origin of the Boeotian *tt*, *d(d)* is, most likely to be traced down to some source directly in Boeotia, as we shall try to explain on page 153. On a level with Boeotian appears to be at that time only the language spoken in Thessalotis;^(126x) of course, even the sporadic, lexically restricted *tt*, demonstrated here and there in other sub-dialects of historical Thessalian may be said to have been equally old. On the contrary, the *tt* in Attic and Euboean was probably only a secondary product of Boeotian influence. Later we shall try to explain why it was only *tt* and not also *d(d)* which penetrated to Attica and Euboea (see page 169). Quite independent of Boeotian, similar geminates originated in the 2nd quarter of the 1st millenium B. C. — with smaller or greater consistency — in Laconica, Elis, and Central Crete, which phenomenon must be traced down entirely to its own specific causes.

The chief positive result of our investigation discussed in this chapter is, according to our opinion, the conclusion, that even in those dialects that use in the historical era instead of the proto-Greek palatalized dentals and velars the explosive geminates *tt*, *d(d)*, the latter phonemes came to exist through the medium of the presupposed older *ts*, *dz*, or even of the still older *tf*, *dz*, as Allen believes. The development of the proto-Greek palatalized dentals and velars avoided,

After all, we find in Cretan demonstrations of even the assimilation *rd > dd* in sandhi positions, e. g. *πατῆδ δδῆι* (ca. 450) or even *πατῆ δδῆι* (ca. 450), and yet, it makes no one draw the conclusion that every *rd* has changed into *dd*; as we shall see later, *rd*, in contrast to it, gets transformed within a morphological unit into *rd*, the ultimate stage being a total loss of *d* with the accompanying compensatory lengthening of the foregoing vowel (cf. page 156). The supposition of a Cretan *z + d* was taken for unnecessary even by Schwyzer, *GG* I 331.

²⁸⁵ More examples may be found in the Czech text on p. 57.

therefore, up to the affricate stage most likely any splitting whatsoever (Diver holds a different view trying to derive specially the Boeotian *tt*, *d(d)* directly from *t't'*, *d'd'*), whereupon the roads appear to have parted, either towards total sibilantization or else towards the production of occlusion. Here our view is, on the whole, in accordance with that of Allen, as presented in *Lingua* 7. In our opinion, namely, the line of development of the proto-Greek palatalized dentals and velars presents the following picture of branching:²⁶⁶



V. The process of assibilation development which the proto-Greek *t't'*, *k'k'* underwent did not start in all the Greek dialects simultaneously. This becomes obvious when we consider the fact that in contrast to the majority of the Greek dialects Attic-Ionic, Arcadian,²⁶⁷ and Pamphylian use regularly the sign $\Sigma\Sigma$ (or even TT , T , Ψ) for certain morphologically bound types of the original *t(h)j*, e. g. in the suffixes *-t(h)jō*, *t(h)jā*, *-t(h)jōn* (and also for every *k(h)j* and *tw*), while for the morphologically unbound *t(h)j* (as well as for *t+s*, *d+s*, and *s+s*) the sign Σ was used.^[133] Cf. in the Ionic of the Cyclades and Asia Minor (excepting archaic Ionic poetry)²⁶⁸ the contrasts *ῥσος*, *τόσος*, *κόσος*, *μέσος*, *πρόσω*, *ῥπίσω*, *σῶμασι*, *δικάσαι* : *ῥρέσσω*, *μέλισσα*, *κρέσσω*; *ῥσων*; *τέσσερες* (instead of $\Sigma\Sigma$ for *k(h)j* and *tw* even the special sign T occurs occasionally: e. g. *τεΤαράροντα*, *τέΤαρας* [VI], *ἐλάΤονος* [cca 465], but also *ἈλικαρναΤέ[ω]ν* [ante 454-3]). In Attic and Euboean²⁶⁹ the distribution is essentially the same as in the Ionic of the Cyclades and Asia Minor, only the substitute for the morphologically bound *t(h)j* and for every *k(h)j* and *tw* is written as TT and not as $\Sigma\Sigma$. In Arcadian cf. again *ῥσος*, *μέσος* (often) or *φυγάσι* (324), *ῥέσῃτοι* (cca 500) with *Μελισσίων* (?),²⁷⁰ *ῥσων* (IV) and even *λεύΤῶν* [IV], the reading of the last example being not quite certain. For Pamphylian, cf. the contrast *ῥσα* (IV): *ῥάνα'ῥα[ν]* (IV), *ΜανΨας* (II) expressed by the graphic counterpart Σ (for morphologically unbound *t(h)j*): Ψ (for *k(h)j*).²⁷¹

²⁶⁶ For Diver's and Allen's opinion, schematically somewhat modified by the present author, see the Czech text, p. 60 sq. Cf. also Schwyzler, *GG* I 318, and Lejeune, *Traité* 69.

²⁶⁷ Cypriot syllabic script could not record geminated sounds; yet we presume for Cyprian the same phonological situation as existed in the just mentioned dialects.

²⁶⁸ In archaic Ionic poetry, esp. in Homer, there is still vacillation in the use of the spellings $\Sigma\Sigma$ and Σ for the morphologically unbound *t(h)j*, and for *s+s*, *t+s*, *d+s*.

²⁶⁹ In Euboean we occasionally find even the *r*, a rhotacized substitute for some intervocalic *z*-variant of the *s*-phoneme, as a development of the proto-Greek morphologically unbound *t(h)j*. Cf., e. g., *ῥπόροι* (410–390).

²⁷⁰ The Arcadian *ῥαδόεσσα* (369) is regarded by Thumb–Scherer 127 as phenomenon of some kind of Koine; but *ss* being the regular substitute for the morphologically bound *tj* of the original suffix *-wptjō* in Arcadian, it does not seem to be necessary to have recourse to such an interpretation. The forms *ῥά(σ)σας* (V) and *ῥασα* (cca 500) are probably archaic spellings not denoting gemination.— As to *βουσοῖ* and *λεύ(σ)σοντες*, see Bechtel, *GD* I 332, or Thumb–Scherer 126.

²⁷¹ The simple Σ in *τιμάῤεσα* (IV) is probably only a matter of spelling; the double $\Sigma\Sigma$ in *ῥ[ικ]αστέρεσσ[ι]* (IV), on the other hand, reflects the adoption of the entire typically Aeolic suffix, containing *ss*.

These differences were interpreted by Risch^[138] as follows: He saw in the simple Σ an expression of very old assibilation, which, in his opinion, affected the so-called South Greek community of dialects, comprising both Mycenaean, and Attic-Ionic, Arcadian-Cyprian, and Pamphylian as the probable successors of Mycenaean, whereas the spelling $\Sigma\Sigma$, TT etc. must be traced down to a later process of assibilation. As to Cyprian, it is not possible in the meantime to come out with any positive arguments along this line, but in reference to Mycenaean we may point out the contrast to-sa (= the proto-Greek **totjai*, *totja*): ke-re-za (cf. *Kρῆσσα* < **tjai*^[141+ 142x]; this interpretation is, however, uncertain), or maybe ka-zo-e (= **kakjoses*; cf. the Attic *κακίων*).²⁷² — Allen, as we see it, takes a similar view as Risch. Yet, we cannot agree with him preferring the term first palatalization in this connection,²⁷³ for we believe the palatalization of the consonants, i. e. the change *t(h)j* > *tʰ*, *k(h)j* > *kʰ* etc., to have run its course in Greek in the proto-Greek era already, and we take for a specifically East Greek^{273a} phenomenon just the first assibilation and nothing prior to it, the same transforming the *tʰ* that developed from the morphologically unbound *t(h)j* into an affricate, which had most likely first the phonetic value *tʃ*. (On the other hand, we endorse Allen's suggestion to designate this proto-Greek *t(h)j* whose substitute is in the historical East-Greek dialects reproduced with the sign Σ as homomorphemic, while the other *t(h)j* with the substitute signs $\Sigma\Sigma$, TT , T , Ψ to call inter-morphemic; we should only like to prefer in this study the slightly modified terms "monomorphemic" and "polymorphemic" — even if mainly for euphonic reasons.)

As for Diver, we cannot agree with his too excessive speculation concerning especially the sporadic Ionic sign T , which he ascribes the pronunciation *ʃʃ* as the Ionic substitute for *k(h)j*, *tw* and for the polymorphemic *t(h)j*, the Arcadian substitute being the same.²⁷⁴ More probable seems to be that the Ionic T (and also the Pamphylian Ψ) were only masks for the retarded and in occurrence locally restricted *ts*. As to Arcadian, we have to point out that there (as well as in Cyprian) the substitute for the polymorphemic *t(h)j* and for *k(h)j* and *tw* found itself in the historical era shifted long ago to the *ss* position under the pressure of the affricate which originated in the beginning of the first millenium B. C. from the *kʰ* which preceded the e-phones and maybe partly also the i-phones, including the e-diphthongs.^[149]

²⁷² Our transcriptions to-sa, ke-re-za, ka-zo-e do not imply the existence of some *s*, *z* in these expressions as early as in the Mycenaean period; on the contrary, such an existence seems to be highly improbable (cf. Note 299). These transcriptions are only to show that the respective substitutes for the morphologically unbound *t(h)j* on the one hand, and for the morphologically bound *t(h)j* on the other, as well as for every *k(h)j*, were very probably different in Mycenaean. Nevertheless, it must be stated that the situation is not yet quite so clear, as we also meet with forms, such as wa-na-so-i = *wanas(s)oin*? < **wanakj-*, or mi-to-we-sa = *mitlowes(s)a* < **wntjə* (for *mitlo-* cf. Hom. *μῆλοπαρρηος*), with the signs of the S-series even for the original *k(h)j* and morphologically bound *t(h)j*.

²⁷³ Let us add that in our opinion the process denoted by Allen as the third palatalization can actually continue to be referred to as "palatalization", but should in fact be qualified as "second" as we — in connection with the above-expressed opinion — maintain that it had been preceded by only one other Greek palatalization. Nevertheless, we shall go on referring to this process either as "Allen's third palatalization", or — on the analogy of the terms "first assibilation" and "second assibilation" — merely as "third assibilation", this process being connected with the liquidation of labiovelars before e- and partly i-sounds (see pp. 153sq.).

^{273a} We prefer to use the term East Greek instead of Risch's South Greek, this difference being only terminological.

²⁷⁴ See Diver, *Word* 14, 16sqq.

In spite of certain difficulties, connected with the phonetic classification of the above-mentioned signs, it is this specific feature of the East Greek dialects, consisting in the double assibilation of the voiceless palatalized dentals and velars, which along with the very archaic change *-ti > -si* in some suffixes^(144*) may be taken for a pretty safe proof of a very old affinity of Attic-Ionic and Arcadian-Cyprian (with Pamphylian in the bargain). From the phonological point of view it meant that East Greek acquired through the first assibilation a new phoneme, displaying probably the character of an affricate, a phoneme which at the time of its origination was without any analogy whatsoever in the remaining dialects. In this respect, a systemic co-ordination of the East Greek phonic system with the systems of the other dialects did not occur until this additional phoneme, being more and more shifted by the pressure of new affricates originating through the second assibilation or even through the liquidation of labiovelars completely fused with the phoneme *s*; and this took place rather late, most likely not before the early centuries of the 1st millenium B. C. (cf. the before-mentioned inconsistency in the use of $\Sigma\Sigma$ and Σ in Homer). In concrete words, of course, the difference between the two types of dialects was preserved, finding its manifestation in the very difference between sign Σ , on the one hand, and sign $\Sigma\Sigma$, or maybe TT , T , ψ , on the other hand.

In the rest of the Greek dialects only the second assibilation asserted itself. This change affected here every *t't'*, whether its origin was *t(h)j* or *k(h)j*, and also every *d'd'*, no matter whether it sprang from *dj* or *gj*, which means that in these dialects the extent of this assibilation was somewhat greater than in East Greek, comprising also the monomorphematic *t(h)j*. The general spread of the second Greek assibilation, in comparison with the limited spread of the first one, tells us that its main wave run its course simultaneously with the decline of the Mycenaean culture, this being the time when even those dialects that formerly had been separated were coming into closer contact with East Greek, which means that the conditions for the spread of this innovation were more favourable than those in which either the change *-ti > -si* or the first assibilation were taking place in East Greek. Nevertheless, it is possible that at least in the East Greek world the beginnings of the second assibilation may have preceded the end of the Mycenaean culture. Forms of the type *ka-zo-e* seem to testify in favour of this view, even though we are obviously not perfectly sure whether the Linear B sign *ZO*, demonstrated in this word, already implied the affricate *tʃo* or even *tso*, or whether it was not still a mere mask for *t't'o*.

VI. In later dialectic differentiation between Arcado-Cyprian and Pamphylian on the one hand, and Attic-Ionic on the other hand, a certain role was played besides other factors also by the metathesis of the phoneme *dz* in the polyphonematic *z+d*. Some scholars, of course, look upon this change as a phenomenon common to all Greek dialects. Lejeune⁽¹⁵⁶⁾ believes that this view finds support in two arguments: firstly, there exists in the historical era in none of the Greek dialects any graphic difference between the substitutes for *dj*, *gj*, *j*- and those for the original consonantal group *z+d*, and secondly, in words like *Ἀθήνας < *-ansde*, *σαλπίζω < *-ngjō*, *σὺνυρος < *sun-j*- there is no trace of the etymological *n* before the sign Σ , just as it does not occur even before the spelling ΣT , e. g. in *σοστέλλω < *sun-st*-. The first argument may be met by confronting it with the Boeotian *Θεόζοτος* (= *θεός + ζοτός* [426 B. C.]) that is found apart from the typical Boeotian *τὸ πεδδύ* [III], *μέδδονος* [II pars post.] ($\Delta\Delta$ stands here for *dj*, *gj*).^{274*} But even the second Lejeune's argument may be objected to by pointing out that the real phonetic value of the sign Σ can by no means definitely demonstrated in this way.

The best approach to the problem can be obtained, to be sure, only by minute analysis of conditions prevailing in each of the dialects:

- a) In Thessalian (Thessaliotis excepting) and in Lesbian the substitute for the proto-Greek *dj*,

^{274*} To this Boeotian parallel even the Thessaliotis *Θεορδότειος < *theo-z-d*- (III): *ἐξέτανα-κά(δ)δῆ* (V) may be added.

gj, j- possessed, no doubt, the phonetic character of *z+d*. Examples from Thessaly: *Ζούλοι* [?]⁽¹⁵⁸⁺⁾, *Ζούπυρος* [?] besides *Θεοζότειος* [214]⁽¹⁵⁹⁺⁾; while the spelling *ΣΖ* in the expression *μεταχρηματισζειν* [III—II?] possessed very likely the phonetic value of *z(z)*^(160+, 161x), which means that the Thessalian *z+d* was through time transformed—maybe due to Attic influence—into *z(z)*. As to Lesbos, we had best allude to pretty frequent literary examples with occasional spelling *ΣΔ*, such as *φροντίσθην* Sappho (cf. also the rather late inscriptional *προσονυμάσδεσθαι* [2—14 A. D.])^{276, (162+)}; on the other hand, the Lesbian pronunciation *dz*, being a secondary product of *di-* with an immediately succeeding vowel, is always reproduced with sign *Z*, e. g. *ζα-* = *δια-* (often), but also *Ζιονύ(σιος)* [ca. 500 B. C.].⁽¹⁶³⁾

b) In Attic and Ionic there positively existed *z+d* (cf. Attic *δζος*, *Ἀθῆναζε* and the like, but also *Ζδεύς*, Euboean *Θεοζότων* [?], or Herodotus's transcription of the Old Persian *Artavazda* as *Ἀρτάβαζος*).⁽¹⁶⁴⁾ This *z+d*, however, is changing in Attica into *z(z)* from the 4th cent. B. C. onward (cf. the unsettled conditions as to the forms *Σεύς* [ca. 340], *ἐπιεπήφισεν* = Impf. *-ζεν* [340], *ἐνδέσζιμους* [329], *ἐπεπήφισζε* [318]);⁽¹⁶⁵⁾ in the Ionic of Asia Minor we find similar examples as late as about 200 B. C. (*Ζμυρναίων* [post 190]).

c) In Argolic it was very likely as early as in the 6th cent. that the above-mentioned substitute was pronounced like *z(z)*, the probable intermediary having been *z+d*. In support of this view the sign *Z* in *δικάζοιτο* [VI—V] is usually mentioned,⁽¹⁶⁶⁾ nevertheless, in our opinion this example speaks in favour of *z(z)* only, without indicating anything about the intermediate stage *z+d*, and the same holds good also for *ἠοῖζι δέ* [VI] and for *Φισζεῖε* ["early"] = *εἰδείη*, mentioned by Buck³, § 62,2, to prove the existence of the Argolic spirantization *d > ḍ*. Thus, we can base the argument for the one-time existence of the Argolic *z+d* more safely only on the occurrence of the form *Τροιζάνιος* [IV] apart from the more frequent *Τροζάν*, *-άνιος*⁽¹⁶⁷⁺⁾ and of *Θιόσοτος* [IV].^{276, (168+)}

d) The pronunciation *z(z)* existed in the 6th cent. B. C. also in Arcadian, it is, however, impossible to demonstrate its origin through the medium of *z+d*. The pronunciation *z(z)* itself is best indicated by the occurrence of the words *ζτραῖον* [ca. 500 B. C.]⁽¹⁷¹⁺⁾ and *τζετρακάται* [V], which are at the same time examples of the affricate substitute for the proto-Greek *k^w*, this substitute being in the 5th cent. most likely pronounced like *ts* (see page 154). The spellings of the two mentioned expressions, containing besides *Z* also either the prepositional or postpositional *T*, suggest namely with considerable probability the assumption that simple *Z*, expressing quite regularly the local substitute for *dj, gj, j-*, hardly represented by 500 B. C. any other phonetical value than that of mere *z(z)*.

e) In Phocian, Messenian, and in some East Aegean Doric dialects analogical indications of *z(z)* pronunciation cannot be demonstrated before the 3rd cent. B. C., which fact may imply the influence of the Attic Koine. Cf. e. g. Phocian *Ζμυρναίος* (ca. 230—200),⁽¹⁷³⁺⁾ Rhodian (from Acragas) *δπωζ* (ca. 240),²⁷⁷ Coan *Ζμῆνδρων* (III—II),⁽¹⁷⁶⁺⁾ Calymnian *Ζμῆνδρωνος* (III—II), Messenian *πρεσζβευταῖς κατεργασζόμενος* (ca. Chr. n.).⁽¹⁷⁶⁺⁾

f) In Elean, Central Crotan, and Laconian the old *dz* was changing in the 2nd quarter of the 1st. millenium B. C. directly into *d(d)* (see pages 146sq. and 161sq.).

²⁷⁶ In the classical and early post-classical inscriptions, the sign *Z* is, however, the only one possible spelling reproducing the original *dj, gj, j-*.

²⁷⁸ As for *Θιόσοτος*, cf. the above-mentioned Attic *Σεύς*, employed instead of *Ζεύς*.

²⁷⁷ The Rhodian *τόζ'* = *τόδ(ε)* (VI), on the other hand, does not seem to warrant that *Z* was sounded as *z(z)* in Rhodes as early as in the 6th cent. B. C. One probably has to do here with an approximate indication of the spirant character of *ḍ* by means of the sign which served to denote the phonetically similar affricate *dz*. Cf. also pp. 156sq.

g) In Boeotia and in Thessaliotis the origin of this $d(d)$ can be traced back as far as the boundary between the 2nd and 1st millenniums B. C. (see page 147).

h) Indications of the substitute $d(d)$ can also be demonstrated in Megarian (*μαῶδαν, χορήδδευε, παντάδδομαι* Aristophanes), in Cyrenaean (*Ἀλάδδευω*, ca. 200), in Corinthian (*Δεύς* on an archaic vase), and in Rhodian (*Δεύς* on an archaic vase, V. cent.; *Ἀριδάλος* [VI?]), but these instances do not make the impression of being general dialectic phenomena, each of them requiring specific explanation. The Megarian forms with $\Delta(\Delta)$ are found only in Aristophanes and need not have belonged to the dialect proper (see, however, also page 153); the Cyrenaean proper name may be of Cretan origin (according to Herodotus IV 164, 4, Cyrene had an influx of Cretan colonists in the 6th cent.); the material from Rhodos may be the outcome of hypercorrect manner of writing, caused by the spirantization of Camirus d in δ (cf. page 156), while the Corinthian *Δεύς* — just like *Δεύς* from Rhodus — are isolated expressions found on archaic vases, and can hardly serve as basis for making more general conclusions concerning the pronunciation in the whole sphere of the respective dialects. And it seems to be altogether out of place to try to include here the Phocian *ΤΟΙΔΙΟΙ* [ca. 600], which is often read as *τῶι θυγαί = τῶ ζυγῶ*; according to Buck³, page 239, the correct reading is *τοὶ δοιοί*.

All these things taken together, we cannot but feel that Lejeune's extreme view, postulating the change $dz > z+d$ for all the Greek dialects, does not sound very convincing. Yet one could hardly agree with the opposite extreme view either, restricting the above-mentioned metathesis to those dialects only, in which it can be quite safely demonstrated, i. e. Attic-Ionic and Lesbo-Thessalian. With reference to Argolic, at least, it appears probable that the change penetrated into the sphere of the West Greek dialects. It is, on the other hand, certain that it did not run its course in Central Crete, Laconia, and Elis, where $d(d)$ was sure to originate directly from dz . What the situation was in the rest of the West Greek dialects cannot be ascertained so far, but considering the fact that the hitherto found material gives no positive results in this matter, it is wiser not to presuppose the occurrence of the change $dz > z+d$ in them, for the time being at least. It must be admitted, however, that such a change would not appear in some West Greek dialects (specially in the Corinthian-Megarian sphere) altogether impossible (cf. further p. 153).

The center of the metathesis was evidently somewhere in the North-East of European Greece, i. e., outside the sphere of the West Greek dialects, most likely in the original Aeolic region. The basic Lesbian-Thessalian and Attic-Ionic spread of this innovation seems, at the same time, to be strongly pointing to its rather ancient origin. It appears a quite probable postulation to trace its beginnings back to some date before the departure of the bulk of the Ionic-Aeolic colonists to Asia Minor, that is to say before 1000 B. C. After this milestone we could hardly assume anything like immediate contact of Thessalian and Lesbian above all. On the other hand, the change does not seem to have taken place as early as in the Mycenaean era. In the Linear B the substitute for the proto-Greek $dj, gj, j-$ is never reproduced with two signs, as one might rightly expect if the pronunciation $z+d$ had actually occurred there; on the contrary, it is every time reproduced by one sign only: to-pe-za, cf. the Attic *τράπεζα*, me-zo, cf. the Ionic *μέζων, -ων*, etc. Also the Cyprian spelling seems to point rather to some affricate or spirant than to a consonantal group of the type $z+d$ (cf. zo-we-se *Ζόφες* [?]), the same indicating in all probability (especially if we take, at the same time, into account that Cyprian had been as early as 1000 B. C. separated for quite a long time from the rest of the Greek speaking world) the fact that neither this dialect had been subjected to the metathesis $dz > z+d$. Similarly it is very creditable that the pronunciation $z+d$ for $dj, gj, j-$ was never introduced in Pamphylian, and when saying so we mean both the old East Greek basic Pamphylian, whose character probably resembled that of Cyprian, and the historical Pamphylian, in the shaping of which an important role was most likely played by Cretan, the latter being a West Greek dialect that was definitely never affected by this metathetic process. And all this considered, we cannot help feeling sceptical about Arcadian, as well. After

the decay of Mycenaean civilization this dialect became encircled by the West Greek environment, and neither later, when metathesis may have already crossed the West Greek boundary, can we take for granted the spread of this innovation in Arcadia, owing to its considerable geographic isolation, all the less in the absence of adequate linguistic material.^(178*)

The beginnings of the change $dz > z+d$ may, thus, be chronologically determined only by the dialectical and geographic post-Mycenaean relations, to wit, by the close relations existing between Attic-Ionic and Lesbian-Thessalian, Arcadian-Cyprian hardly participating in this process. It was only in Ionia, Attica, Thessaly, and Lesbos that on the threshold of the 1st millenium B. C. (somewhat later probably also in Argolis) disappeared from the consonantal system the phoneme dz , without being replaced immediately after by a new phoneme. — The parallelism of the newly arisen $z+d$ with analogical $s+t$ (cf. the above couple $\sigma\acute{\upsilon}\zeta\nu\rho\omicron\varsigma$ and $\sigma\upsilon\sigma\tau\acute{\epsilon}\lambda\lambda\omega$), or even with $z+b$, $z+m$ and the like, namely indicates that $z+d$ was a biphonematic consonantal group, z appearing here merely as a combinatory variant of s . (As to further development of this $z+d$ see page 165.)

In the rest of the Greek dialects the monophonematic dz was either still preserved by that time (as to its further development see also page 174), or it began to change into the explosive $d(d)$, the latter likewise having the value of an independent phoneme. The second possibility was what actually happened in Boeotia and in Thessaliotis. In reference to these two regions we are struck with the fact that the local dialects, which otherwise are considered to be Aeolic, do not seem to participate in the metathesis $dz > z+d$ at all. This may be explained in two ways. Either it was directly the Aeolic stratum of Boeotian or of Thessaliotic Thessalian as well, which escaped as such the metathetic process, or when the basic Aeolic stratum with its possible $z+d$ was overlaid by the West Greek component with its dz , an explosive $d(d)$ originated either through some assimilation process or through mere contamination of $z+d$ and dz .²⁷⁸ This special innovation may have run its course in Boeotia and Thessaliotis simultaneously. — A similar explanation, after all, might be accepted also in reference to the above quoted Megarian $d(d)$, demonstrated in Aristophanes only and representing a contrasting exception to the consistent use of sign Z in Megarian inscriptions. It is namely possible that also in Megaris there existed a similar intradialectical difference as in Thessalian, whether the $d(d)$ in Aristophanes was a direct invasion of Boeotian influence or the product of some contamination again, which, of course, would have been the very opposite of the Boeotian-Thessaliotic analogy (the basic West Greek dz may have been influenced here—i. e. at least in some parts of the Megarian territory—by the Attic $z+d$). When taking into account the scarcity of Megarian material we cannot even exclude the possibility that the inscriptional Megarian Z may have been a mere mask of the phonetic value $z+d$. In the case of Megarian and also Corinthian this hypothesis would not be altogether implausible, owing to the close geographic vicinity of both Attica and Argolis, it is, however, without any positive proof so far. In contrast to it, the Central Cretan, Laconian, and Elean $d(d)$, whose birthdate we have ascribed to the 2nd quarter of the 1st millenium B. C., sprang most likely directly from dz in connection with phonemic transformations, which will be discussed later (cf. pages 160sq.); similarly also the Arcadian and the Cyprian $z(z)$ were surely direct offsprings of dz , i. e. as they veritably existed as early as about 500 B. C. (cf. further page 154).

VII. The complete liquidation of the proto-Greek labiovelars k^v , g^v , k^vh is not so essential for the investigation of the systemic differentiation of Greek dialects as the palatalization of consonants we have just been discussing. This becomes clear to us when we realize that the most pronounced dialectical difference associated with the liquidation of labiovelars, i. e. the contrast of the Aeolic labial substitutes⁽¹⁸²⁾ and of the non-Aeolic dental substitutes used for labiovelars before e-vowels and partly also i-vowels,⁽¹⁸¹⁾ found its expression only in the uneven loading of the labial and dental phonemes in either of the two types of dialects (the peculiar Cyprian

²⁷⁸ Nevertheless, this latter hypothesis is not very convincing and we shall try to do without it.

pe-i-se-i = *πείσαι* [ca. 450] and pe-i-se = *πείσῃ* [?, pars post.] (cf. Att. *τείσαι*, *ῆ*) got likely its p- from that of *ποινά*.¹⁸³⁺

This difference between Aeolic and the other dialects may be explained as archaic tendency on the part of Aeolic. To be sure, the Aeolic dialects kept apart from the palatalization change of the type *k^w(h)-e*, *k^w-i > k^j- > t^j- > ts- > t-*, and also of *g^w-e > g^j- > d^j- > dz- > d-*, which was according to Lejeune¹⁸⁵ the fundamental line of development in the non-Aeolic dialects, as far as the liquidation of labiovelars before the above-mentioned phones is concerned (cf. also Allen's expositions concerning his "third" palatalization¹⁸¹⁺).

This non-Aeolic palatalizing development is just what gave rise to the most important systemic difference concerning the sphere of the proto-Greek labiovelars. In Arcadian and Cyprian namely, the indicated palatalization process had not yet reached the explosive stage by 500 B. C. We may quote here the following material: in Arcadian the expressions *ὄλλεοι*, *λλις*, *εἴλλε* = *ὄτω*, *τις*, *εἶτε* (Mantineia, V), the before mentioned *τζετρακάτιαι* (Tegea, V extr.), and *ζτεραῖον* (Clitor or Lusoi, ca. 500), from the latter place also *δζις* = *δτις* and *ζ'* = *τ(ε)*, and finally Hesychios's gloss *ζέλλειν* *βάλλειν* and Strabon's *ζέρεθρα* besides *βερέθρων*¹⁸⁷ standing for the Attic *βάραθρον*. As to Cyprian, cf. si-se = Att. *τις* (ca. 450) and Hesychios's gloss *σὶ βόλε(αι)· τὶ θέλεις*.

As to the pronunciation of these words, we feel inclined to side with Lejeune¹⁸⁸ in ascribing hypothetically the Arcadian continuant substitutes for labiovelars preceding the above-mentioned phones the character of the affricates *ts*, *dz*²⁷⁹, at least about 500 B. C. The same would likely have to be applied to contemporary Cyprian. In reference to the occasional tendency to see in the Mantinean sign *λ* a mask for some *f*, it should be pointed out that the same sign occurs in the same inscription also in the peculiar word *ἀπυλλεδομίν[ος]* used for *ἀποδοδόμενος*, and that the phonic change *d > f*, or perhaps *d > z* would appear here from the phonetic point of view altogether improbable. The occurrence of the above-mentioned sign in Mantinea makes us, of course, conclude that the results of the third Allen's palatalization, i. e. of the complex of palatalization and assibilation changes of labiovelars before e-phones and partly also before i-phones, were not yet identical in this community in the fifth cent. B. C. with the local results of the 2nd assibilation, these having passed already into *ss*, *z(z)*. And the complete identity of these two results had not yet been accomplished even in Tegea by the end of 400 B. C., as we can see from the before mentioned form *τζετρακάτιαι* in a Laconian inscription from Tegea, evidently executed by an Arcadian writer. The existence of the signs TZ we have already tried on p. 151 to explain as an effort of the writer to express by means of the sign T the affricate character of the Tegean substitute for the proto-Greek *k^w*, this occurring at a time when Z alone no more sufficed to indicate the affricate aspect. There are, however, two cases when we meet in Arcadian inscription in analogical situations with mere Z, these being the forms *δζις* and *ζ'*, alluded to before. Yet, neither this reproduction makes it imperative to believe here in the change of an affricate into a pure sibilant. The "voiced" sign Z used here to reproduce a voiceless phone (in either case it is substitute for *k^w*) indicates beyond doubt that the voiceless Arcadian substitute for the proto-Greek *k^w* was as yet in no way identical with the local voiceless phone, going back to the proto-Greek polymorphematic *t(h)j*, as well as to *k(h)j* and *tw*, for in the contrary situation the engraver would certainly not have resorted to such exceptional graphic reproduction, most likely employing the signs *ΣΣ* here. A different picture presents, no doubt, Strabon's *ζέρεθρα*. Here it is the Arcadian substitute for the voiced proto-Greek *g^w* that is reproduced by sign Z, and at the time of Strabon this substitute was sure to be pronounced like a pure spirantic *z(z)*. Nevertheless, for the middle of the 1st millenium B. C. it must be taken nearly for granted that at that time in some parts of the Arcadian territory, at least, there still existed side by side two dental affricate phonemes

²⁷⁹ We are not in a position to establish the Arcadian and Cyprian substitutes for the proto-Greek *k^wh* as no relevant Arcadian or Cyprian words have been found.

(*ts*, *dz*) and three pure sibilants (*ss*, *z(z)*, *s*). Whether the same was the case in Cyprian, too, is rather hard to state, yet it appears to be upon the whole probable.

When reviewing the loss of the labiovelars from the chronological point of view, we see that the first signs of liquidation appear as early as in Mycenaean. It is true, this extremely old Greek dialect disposes of a nearly complete set of syllabic signs for the reproduction of labiovelars (cf. e. g. o-qa-wo-ni = *Ok^wāwoni* < **sok^w*-, cf. *ὀπάων*⁽¹⁹⁰⁺¹⁾; qe-to-ro-we = *k^wetrōwes*, cf. *τέτταρες*; qi-ri-ja-to = *k^wriato*, cf. *πλάτο*; qo-(u)-qo-ta, -ta-o = *g^woug^wōtās*, -*tāo* [more frequently], cf. *βουβώτης*),²⁸⁰ yet, we meet here and there also with inconsistency in applying the labiovelar and labial signs²⁸¹ (e. g. qe-re-qo-ta-o = *k^wēlek^whontāo*, cf. *τῆλε* a -*φόντης*, side by side with the more frequent pe-re-qo-ta).⁽¹⁹³⁺¹⁾

The palatalization proper of the labiovelars must have been running its course subsequent to the decay of the Mycenaean civilization. In any case, it is sure to have been accomplished within a comparatively short stretch of time, for we find in the oldest material of the classical Greek dialects the phonic situation already rather stabilized in that respect, to be sure, with the exception of Arcadian and Cyprian.

VIII. The spirantization of mediae and of aspirates is a phenomenon whose authenticity is beyond doubt in later Hellenistic Greek. Besides one set of explosives (the latter were the voiceless *p*, *t*, *k*, whose voicelessness was from the distinctive point of view irrelevant), this stage in the development of Greek disposed of two sets of spirants, the distinctive contradiction being here that of voiced and voiceless consonants (*b*, *d*, *γ/j* in contrast to *f*, *θ*, *χ*). This Hellenistic transformation of the consonantal system was a direct offspring of the foregoing systemic development in Attic, and perhaps even in Ionic, but we may find sporadic traces of similar phenomena also in other Greek dialects.

a) Typical examples of comparatively reliable material speaking for the spirantization of mediae are to be found on the table reproduced on the next page 156²⁸². — On the other hand,

²⁸⁰ Although some scholars (cf., e. g., Georgiev, *Slovar* 7) hold that the Mycenaean syllabary contained a QU sign, it seems to be more correct to adopt Furumark's view interpreting this sign as KU₂ (*Eranos* 51, 112). Considering the general instability of the sound-group *k^wu*, observed in a number of Indo-European languages, it is quite possible that even in Greek this sound-group had been subject to change considerably earlier than the tendency to discard completely the labiovelars could make itself felt.

²⁸¹ The loss of the velar component of a labiovelar hardly represents here the very last phase of the general liquidation of labiovelars (cf. in Lejeune's *Traité* 43sq. the explanation concerning the three phases of this process), but it rather indicates just the earliest Greek manifestations of the tendency to liquidate labiovelars in the neighbourhood of other phones than *u*; this also means that no such specific palatalization processes as Allen's third palatalization were taking place as yet.

²⁸² Of the notes [194]—[201] accompanying the text, we give here—in abbreviated form—those which may be less intelligible to a reader not accustomed to read Czech:

Czech Note [194]: According to Lejeune, *Traité* 47, Note 1, we encounter here a hypercorrect spelling, resulting from the Elean change *dz* into *d(d)* (both these values being substitutes for the proto-Greek *dj*, *gj*, *j*). This explanation is, however, not very convincing, as the employment of the sign Z instead of Δ is likely in Elis an older phenomenon than the accomplishment of the change *dz* > *d(d)*. Cf. further details on page 161.

Czech Note [195]: Central Cretan *d*, however, did not become spirant after *n*. This is borne out by forms of the *ἀντρήϊοι* type.

Czech Note [196]: *σποφδδάν* (litt. vetust.) is another form adduced to prove in Central Cretan change of *d* to *d̄*; the argument involved, however, is not very convincing.

Specimens of words documenting spirantization of mediae

Elis	<p>$b > \delta$: <i>βοικίαρ</i> = <i>οικίας</i> [III—II]; <i>Βαδύ</i> = *<i>Ηδύ</i> Paus.</p> <p>$d > \delta$: <i>ζέ</i> = <i>δέ</i>, <i>Zl</i> = <i>Δί</i>, <i>ζίκαια</i> = <i>δικαία</i>, <i>ζᾶμον</i> = <i>δῆμον</i>, etc. [VII—VI]⁽¹⁹⁴⁾</p>
Creta med. ^{282c} et occid.	<p>$b > \delta$: <i>διαβειπάμε[νος]</i> [ca. 400?], etc.; <i>βαλικιώτης</i> · <i>συνέφηβος</i>, <i>ἀβέλιον</i> · <i>ἥλιον</i> Hesych.; <i>Βορθίω</i> [West Crete, 193]</p> <p>$d > \delta$: <i>Φέροντι</i> [litt. vet.], [<i>Φ</i>] <i>ηρόντων</i> [300] < *<i>werdonit-</i>; <i>πήριξ</i> · <i>πέριξ</i>, <i>πήραξον</i> · <i>ἀπόδευσον</i> Hesych.^(195, 196)</p>
Corinthus et coloniae	<p>$b > \delta$: <i>ἀμοιFάν</i> = <i>ἀμοιβήν</i> [V]⁽¹⁹⁷⁾, <i>ἄρβος</i> [Corc., IV extr.],⁽¹⁹⁸⁾ <i>Βοικῆνος</i>, <i>Πύρβα</i> [Durrhachium, III—II?]⁽¹⁹⁹⁾, <i>Βοι</i> [Anactorium, III—II?]; cf. <i>βαροδῆν</i> and <i>ἔβασον</i> Hesych.</p> <p>$d > \delta$: <i>ζέκ[α]</i> = <i>δέκα</i> [VI]</p>
Argolis	<p>$b > \delta$: <i>Βορθαγόρας</i> [V], <i>Πυρβαλλων</i> [146]; <i>ᾠβεα</i> · <i>τὰ ᾠά</i> Hesych.</p> <p>$d > \delta$: <i>Φισζεῖε</i> = <i>εἰδέη</i> ["early"], <i>σευτέρας</i> [post 338]</p>
Pamphylia	<p>$b > \delta$: <i>ἡἔλωταισ[ε]</i>, <i>ἐφ[υ]ἔλωται</i> (cf. <i>ἦβη</i>, <i>ἔφηβος</i>) [IV]; cf. later <i>Κορβαλις</i> ["Roman date"]</p> <p>$g > \gamma/j$: <i>μειιάλ[αν]</i> = <i>μεγάλην</i> [IV], etc.</p>
Boeotia ⁽²⁰⁰⁾	<p>$b > \delta$: <i>εῦδομον</i> = <i>ἔβδομον</i> [III extr.];⁽²⁰¹⁾ [ca. 200?]</p> <p>$g > \gamma/j$: <i>ιώγα</i> = <i>ἔγωγε</i> Aristoph., Hesych.; <i>ιώγα</i> Cor.; cf. later <i>ἀγελοχα</i> = <i>ἀγήγοχα</i> Etym. Magn., and <i>ἐπι Γιοργία</i></p>
Arcadia	<p>$d > \delta$: <i>ἀπυΛεδομίν[ος]</i> = <i>ἀποδεδομένος</i> [Mantineia, V]</p> <p>$g > \gamma/j$: <i>Φιαλ-</i> = <i>Φιγαλ-</i> [Messianian inscription found in Arcadian Phigalia [240]]</p>
Laconica	<p>$b > \delta$: <i>Βαστίας</i> (cf. <i>ἄστν</i>) [V], etc.</p>
Ionia	<p>$b > \delta$: <i>Εὔδομλον</i> [ca. 200]</p>
Rhodus	<p>$d > \delta$: <i>τόζ*</i> = <i>τόδ(ε)</i> [Camirus, VI]</p>
Attica	<p>$g > \gamma/j$: <i>ὀλλος</i> = <i>ὀλλγος</i> [since 318]</p>

^{282c} And also Lato and Olus in the Central-East transitional zone.

examples quoted in Czech Note 203, page 83sq., either cannot be considered as proofs of accomplished spirantization of mediae in the respective dialect (*βίδυοι*, *Φιαλ*-, *Βείδυος*), or else no spirantization of mediae is indicated in them at all (*κασι(γ)νήται*, *βρόδων*).^{282a} As to dialects enumerated on page 156, here we should distinguish between material of major and of minor importance. Specially in reference to later material we are hardly ever perfectly sure whether the document in question does not represent a secondary influence of the Hellenistic Koine. We feel inclined to ascribe less significance also to such documents of spirantization of mediae whose locally restricted occurrence can scarcely prove a general spread of the respective phenomenon all over the territory of its dialect. Thus for example, if we exclude the Corinthian colonies adjoining the Ionic and the Adriatic Sea and also the problematic *ἀμοιῤάν*, it is only the expression *ξέκ[α]* from Phlius (VI) that is left for the maternal Corinthian territory proper. The Arcadian documents of spirantization of mediae are again restricted only to Mantinea (and Phigalia), and the Rhodian to Camirus. In our discussion we intend to give due consideration even to such documents, all the more since they are mostly archaic, but their dialectical significance can hardly be put on a level with that of the spirantization documents from the rest of the quoted dialects.

Further we see from our quotations that in none of the Greek dialects have been preserved direct documents of spirantization of all the three voiced explosives. Taken singly, we find the spirantization of labial *b* represented most frequently (in 8 cases of 11), which can be explained by that exceptionally favourable property of labials consisting in the fact that the newly arising spirant *b* was in fact identical with the value of *w*, which formerly originated from *IE. y*, opening thus the road towards mutual convertibility of signs *B* and *ῤ*. As to this convertibility, it is of interest that it is nearly always onesided: Whereas for the etymological *b* we nearly never find *ῤ* — the exception being the Corinthian *ἀμοιῤάν* (cf., however, Note 282) —, and only scarcely the sign *Y* or the Pamphylian *W* (see Pamph. *ἡἔWοττιοσ[ι]*, *ἐφ[υ]ἔWοτα*, Boeotian *εὔδομον* [cf., however, the Note 282], and Ionic *Εὔδομίον*), *B* used for the etymological *y* is a frequent occurrence. This phenomenon may be in our opinion quoted in support of the view that even the spirantization of consonant *b* alone, if safely established, may be in certain favourable circumstances (e. g. in Laconian)^{282b} taken for a rather reliable proof of accomplished spirantization of all the three voiced explosives. Let us namely imagine that *b* alone had been spirantized in Laconian into *b̄* /that is to say into *w*/, without any parallel tendency towards spirantizing the phones *d* and *g* at the same time. This taken for granted, we should naturally expect to go on encountering sign *ῤ* used to express spirantization of the etymological *b*, all the more since Laconian is a dialect in which sign *ῤ* was kept up quite long in the Hellenistic era. If, however, Laconian employs on the contrary very often sign *B* even for the etymological *y*, the use of this rival sign seems to indicate that there must have occurred some wider phonological re-valuation in the dialect. The essential feature of this transformation was very likely the fact that the spirantic substitute for the etymological *y* probably turned all of a sudden into an inferior

Czech Note [197]: As for *ἀμοιῤα*, see Schwyzer, *GG* I 224, Note 6, and *GG* I 273.

Czech Note [200]: It may be asked whether Hesiod's *μέζεε* (= [*mēdea*?]) (*Erga* 512) could not be interpreted as a very early example of the Boeotian spirantization of *d*.

Czech Notes [198] and [201]: The readings are uncertain.

^{282a} The forms *βίδυοι* and *Φιαλ*- are not of Messenian origin (*βίδυοι*, denoting some officials, being a loan from Laconian, *Φι(γ)άλευα* a name of an Arcadian community). Similarly, the Phocian *Βείδυος* is a name of person, known not to be of Phocian origin. The Cyprian form *ta-i-ka-si-ne-ta-i* proves hardly more than the weakening of *g* before *n*. As for the Lesbian *βρόδων*, it undoubtedly displays the dissimilation of *w* to an actually explosive *b* before a following *r*.

^{282b} We turn to Laconian here as it is one of the few dialects for which early spirantization of only one voiced explosive (the labial) can be established.

participant of the phoneme *w*, when the latter had absorbed through spirantization also the etymological *b*; and this phonological devaluation of the etymological *z* may in all probability have occurred only if in Laconian the tendency towards spirantization affected not only *b*, but also the two remaining voiced explosives, i. e. the whole series of mediae. This does not mean, of course, that all voiced explosives must have every time changed into spirants simultaneously. Our standpoint would rather imply the view that the impairment of the explosive character of one of the mediae might have with great probability implicated the tendency towards an analogical process with the rest of the explosives in the respective dialect.²⁸³

When compared to *b*, the graphic conditions in the case of *d* and *g* were less favourable for demonstrating the spirantization of these phones. Both the spirantic *ḍ* and the spirantic *ḡ* represented namely in Greek altogether new phonemes, while the sporadically occurring *j* was not an independent phoneme at all, but only a variant of the phoneme *γ*. All this considered, we must not wonder that the spirantization of consonant *d* can be directly demonstrated in 6 dialects only, while that of consonant *g* in 4 cases only.

Nevertheless, although in our effort to perform concrete analysis of the spirantization of mediae we largely depend on chance supplying us with the written demonstrations, yet we are able to draw some rather striking conclusions from the collected material. Thus, for example, one can detect a comparatively very early spirantization in Elean, Central and perhaps also West Cretan, Laconian, Boeotian, and Pamphylian. You cannot be quite so sure about Argolic, Arcadian, Corinthian, and Rhodian. Specially in reference to the last three dialects we have already pointed out that spirantization in them had rather a partial and local character. On the basis of before mentioned arguments we hardly could—in spite of certain graphic indications—assume so far any spirantization of mediae in Messenian, Phocian, Cyprian, and also in Lesbian, and this number would most likely have to be supplemented with all the remaining and hitherto unquoted dialects. Exception to this rule is Attic and Ionic, where this process is sure to have run its course, but when compared to dialects mentioned at the outset of this enumeration, the Attic and specially the Ionic demonstrations of this phenomenon are substantially younger, their chief documentary value lying in the very fact that they became the foundation stones of Hellenistic Greek.

Thus we may, upon the whole, divide the dialects into two essentially different groups: one comprising the first six dialects displaying a marked spirantizing tendency (including also Argolic) and the other made up of those in whose preserved written material we detect no safe dialectical demonstration of this phenomenon. Among the latter set we must include Lesbian and Thessalian, Cyprian, Megarian, the majority of East Aegean Doric dialects, the dialects of East Crete, Messenia, Peloponnesian Achaea, the so-called North-West dialects—to be sure, without Elean, whose “North-West” character is rather problematic^{283a}—and the dialect of Tarentum and Heraclea.

The list of the spirantizing dialects is not unsimilar to that of those which in their long-vowel development did not experience the transformation of the three-grade system into the four-grade one.¹²⁰⁷¹ Among the dialects that had in the 1st quarter of the 1st millenium B. C. the three-grade

²⁸³ This explanation of the rather onesided use of sign B for *z* invalidates the view expressed by Brause (*Lautlehre* 39 and 42sq.), according to whom B was pronounced like the spirantic *ḍ* and *z* like the “consonantal” *z*.

^{283a} The point is that, as it will be shown presently, the Elean system of long vowels constantly kept up its three-grade basis, whereas in the corresponding systems of Phocian, Locrian, Aetolian—in connection with the first compensatory lengthening (as to this term see Note 285)—the change of a three-grade to a four-grade structure took place. Cf. Bartoněk, *Charisteria*, and *Sborník* E 6.

system, i. e. disposed of only one \bar{e} or \bar{o} (Arcadian, Cyprian, Pamphylian, Lesbian, Thessalian, Boeotian Elean, Cretan, Laconian with the dialect of Tarentum and Heraclea, and the East Aegean Doric dialects), it is only Cyprian, Lesbian, Thessalian, the dialect of Tarentum and Heraclea, most of the East Aegean Doric dialects and the dialect of East Crete,²⁸⁴ in which early spirantization of mediae cannot be demonstrated. On the contrary, in those dialects which had at that time the four-grade system basis and disposed of two kinds of both \bar{e} and \bar{o} (the North-West dialects (Elean excepting), Megarian, Corinthian, Attic, Ionic) early spirantization of mediae can be demonstrated only in Corinthian (and with local restriction on the top of it), while later, i. e. in the 4th or the 2nd cent. B. C. respectively, we, of course, come across this spirantization also in Attic and Ionic. At first thought you perhaps find our view connecting both these phenomena rather confusing when realizing that spirantization of mediae, which must be considered an innovation phenomenon, has been demonstrated mainly in those dialects that displayed a conservative tendency, as far as their long-vowel system is concerned. However, the association of these two factors, one of them innovating and the other archaizing, is not altogether unconceivable, after all.

The transformation of the long-vowel three-grade system into a four-grade one in the above-mentioned dialects is namely connected with the fact that it is almost exclusively in these Greek dialects that the two older compensatory lengthenings²⁸⁵ (types **esmi* > $\bar{e}mi$ and **tons* > $\bar{t}os$) were performed. The product of these changes—as far as the e- and o-vowels are concerned—was a long \bar{e} or \bar{o} , so that, if the number of the existing long e- and o-phonemes had not been doubled, a very considerable functional overloading of them must have been the result in those dialects.²⁸⁶ This systemic transformation was, therefore, determined by inherent necessity of the respective dialects, and any attempt to put a stop to it would have hampered the ability of the language to remain sufficiently distinctive. This wave of innovation had its focus somewhere near the Gulf of Corinth, and its spread to adjoining regions resulted in the early centuries of the 1st millennium B. C. in forming a pretty bulky group of dialects, a group that may be denoted as a comparatively central one in the Greek both political and linguistic world of the day. On the contrary, dialects that missed this systemic transformation were at that time either pretty distant from this innovation center, or else isolated from it geographically in some other way.

On the other hand, the process of spirantization of mediae gave rise to no additional phoneme; it only meant re-valuation of older phonological relations. Thus the realization of this change did not result directly from the inherent necessity of any of the respective dialects, but probably had for its basis the general Greek tendency to weaken the articulation of consonants, this tendency both having been originally called forth and later being continually supported

²⁸⁴ The rather high number of these deviations may be explained by the assumption that spirantization of mediae was not a phenomenon that would spread like a continuant isogloss; a real proof testifying in favour of the vocalic-consonantal parallelism which we allude to would rather have to be seen in the nearly complete geographic identity of the spread of the four-grade vocalic system, on the one hand, and the sphere in which early spirantization of mediae can by no means be demonstrated, on the other hand.

²⁸⁵ Here we have to deal partly with the oldest (i. e. the "first") compensatory lengthening, arising from the simplification of the primary consonantal groups *sl*, *sr*, *sm*, *sn*, *ls*, *rs*, *ms*, *ns* (in Ionic and Attic it was prior to the change \bar{a} > \bar{e}), and partly with a later (i. e. the "second") lengthening, occurring when the secondary *ns* was being liquidated (in Ionic and Attic it succeeded the above-mentioned change). For further details see Bartoněk, *Sborník* E 6.

²⁸⁶ It is, of course, difficult to explain why the four-grade vocalic system did not originate in Laconian, as well, since both old compensatory lengthenings ran their course in this dialect without any restriction.

by substratum influences. If this actually was the case, one cannot wonder at the comparatively uniform resistance to spirantization of mediae—which was probably a non-Greek phenomenon by origin—predominantly on the part of those dialects that formed after the Doric invasion (first near the Gulf of Corinth) the above mentioned compact group of dialects, which represented, a few North-West dialects excepting, the political, economic, and spiritual center of contemporary Greece. On the other hand, the majority of the peripheral dialects, which did not participate in this central group, succumbed most likely about the middle of the early half of the 1st millennium B. C. to spirantization of mediae, since, due to their more isolated situation, the resistance to this tendency began to yield here earlier than in the rest of the Greek dialects. Cf. e. g. Pamphylian in which spirantization of mediae asserted its influence so strongly just because this dialect was nearly completely isolated from the rest of the Greek speaking world. (Thessalian and Lesbian, being peripheral dialects, too, remained, however, unaffected both by that consonantal innovation which consisted in doubling the number of the long *e*, *o* phonemes, and by spirantization of mediae. The latter instance has to be most likely ascribed to the fact that the substratum spirantization influences, whose focus was in all probability somewhere in the south, could evidently not penetrate to the north across the territory of the above-mentioned compact group of dialects, with the four-vowel system.)

b) The second manifestation of the spirantizing tendency in Ancient Greek was the spirantization of aspirates. This phenomenon implied the change $ph > f$, $th > \theta$, and $kh > \chi$, but it has left much fewer demonstrations from the pre-Hellenistic Greek than spirantization of mediae. Of the single Greek dialects of that time it is possible to quote in this connection only one reliable example, i. e. the spirantization of the Laconian *th* (cf. $\sigma\acute{\iota}\delta\varsigma = \theta\epsilon\acute{\omicron}\varsigma$ (often), or the inscriptional $\acute{\alpha}\nu\epsilon\acute{\sigma}\eta\eta\kappa\epsilon = \acute{\alpha}\nu\epsilon\theta\eta\eta\kappa\epsilon$ [IV init.]). Here we encounter, no doubt, a spirantization phenomenon, it is, however, not quite sure whether the sign Θ reproduces here actually *s* or the dental spirant θ ; it may be suggested that for the 4th cent. B. C. the latter possibility appears to be more probable.^(211*, 212*) To what extent succumbed to spirantization also the aspirates *ph* and *kh* in pre-Hellenistic Laconian, that remains so far an unsolved problem. Although an early tendency towards their spirantization cannot be excluded, yet on the basis of known material it can hardly be assumed.

In reference to some further documents quoted here and there from different periods B. C. with the intention to support the theory of spirantization of aspirates, it should be pointed out that these are for the most part either very uncertain and isolated cases — and rather late at that—(cf. West-Cretan $\text{Ἰ} \text{Ἀσσυβος}$ [II ?]²⁸⁷ and the Elean gloss $\beta\omicron\omicron\sigma\acute{\omicron}\nu \sigma\tau\alpha\nu\acute{\omicron}\nu$ [Hesychios]), or merely make-believe spirantization phenomena that may more plausibly be explained by assimilation (e. g. the Elean $\acute{\alpha}\nu\omicron\delta\acute{\omicron}\sigma\sigma\alpha\iota$ [ca. 350] or $\nu\omicron\upsilon\eta\acute{\alpha}\sigma\sigma\alpha\iota$ [III—II]). Of a rather convincing character is only the isolated Pamphylian $\phi\lambda\kappa\alpha\tau\iota$ [II] with Φ instead of the expected $F\lambda\kappa\alpha\tau\iota$. More frequent are the documentations of spirantization of aspirates found as late as in the first centuries A. D.⁽²¹⁴⁾

IX. The systemic importance of spirantization of mediae was not restricted in dialects affected by it to re-valuation of relations existing between single sets of Greek explosives, but likely implied also some changes in the substitutes for proto-Greek palatalized dentals and velars.

a) First of all, we have in mind the possibility that there existed some connection between the spirantization $d > \delta$ and the change $dz > d(\delta)$, for the dialects in which the latter change has safely been demonstrated [Elean, Central Cretan, Laconian, and Boeotian] are those which may unquestionably be attributed a rather developed and upon the whole early general spirantization of mediae. This connection may be conceived as follows: *dz* changed into *d(d)* for the simple

²⁸⁷ On the possibility of the Central Cretan change of $th > \theta$, and especially of that of $t > \theta\theta$, see the detailed discussion on pp. 161sqq.

reason that after the accomplished spirantization of mediae there was left a gap in the system, free to be occupied by a new dental explosive d , and that now it was possible to re-fill to some extent at least the gap with the phoneme dd and its variant \check{d} , pertinent to the opening of the word.

The only possibility of verifying this hypothesis is to prove that in the respective dialects the documents of spirantization of mediae are at least as old, if not older, as the change $dz > d(d)$. In Elean the earliest inscriptional material seems to indicate that the change $d > \check{d}$ had been accomplished about 600 B. C.—Cf. the most archaic Elean forms ζέ, ζλκαια etc. [VII—VI] written with the sign I . The somewhat later Elean replacement of sign I by sign Δ need not be interpreted here as Lejeune²⁸⁸ suggest when saying that expressions such as ζέ, ζλκαια represent only hypercorrect forms influenced just by the change $dz > d(d)$, for in contrast to them Elean expressions ε]μολιζοι [ante 570 aut ante 450], Ζευξλα[ε [500] which have I for original dj indicate that the change $dz > d(d)$ was only passing through its final stage at the time when the spirantization process was already accomplished. Specially instructive is the double use of sign I in the inscription which has supplied us with the above quoted form ε]μολιζοι; apart from this expression with I for dj we find in this document once the same sign I even for the etymological \check{d} (in κα(ζ)ζαλέμενον, cf. Attic καταδηλέομαι), though \check{d} is in this inscription as a rule written by sign Δ . This twofold kind of reproduction seems to represent that interesting Elean stage when the remains of the affricate dz were still in use for the proto-Greek voiced palatalized dental, but when the original d had for some time already been pronounced in the spirantic way as \check{d} , both dz and \check{d} being, however, reproduced by the letter I in the quoted instances. The same sign I , of course, need not mean here the same pronunciation, similarly as we must distinguish two kinds of pronunciation in the later Elean inscriptions with sign Δ , this being used there both for the old dj , gj , j - and for the original d as well.²⁸⁹ In favour of a different pronunciation of the substitutes for each of these two phonic types in Elean speaks also a younger inscription, reproducing the substitute for the proto-Greek dj with the spelling TT ²⁹⁰ (cf. ἀπτάμιον, ροστήτην [ca. 350]) and that for the original \check{d} with the sign Δ . This case really seems to indicate just an effort to differentiate in some graphic way the explosive $d(d)$ (as a substitute for dj , gj , j -) from the spirantic \check{d} . The fact that the engravers gave here preference to TT before $\Delta\Delta$ finds a probable explanation in the assumption that the proto-Greek consonantal system had by that time been phonologically transformed in Elean to such a degree that sign Δ was looked upon as a typical symbol to express a spirant and not an explosive. This taken for granted, the letter T was obviously a sign suitable for the reproduction of any dental explosive.^[217+]

In Central Crete, on the other hand, the first traces of the two phonic changes we are comparing are approximately of the same date. Both of them are documented by inscriptions written in younger epichoric alphabet [litt. vet.], but not in the oldest epichoric alphabet [litt. vetust.]. Taking into consideration that the Greek alphabet disposed of a suitable sign for the explosive $d(d)$, so that it could be employed immediately after the change $dz > d(d)$ had been accomplished, while it had nothing of the kind for the spirantic \check{d} , we may consider it probable that in Central Crete, in spite of the contemporary documentation of the two processes, spirantization was, nevertheless, the older of the two phenomena.

However, the main peculiarity of Central Crete consists in the fact that it was not only $d(d)$,

²⁸⁸ See Lejeune, *Traité* 47, Note 1.

²⁸⁹ In the former case it was, of course, "appropriate" to employ the geminated spelling $\Delta\Delta$ —the initial position obviously excepting—but more frequent is even here the occurrence of the non-geminated Δ , this being, of course, a matter of spelling again.

²⁹⁰ The designation TT , not $T(T)$, is used here, for in a case like this the simple T has not been established for Elean.

but also *tt*, which originated in it, this being likely a secondary phenomenon running parallel with the change $dz > d(d)$; this geminated *tt* represented, of course, a sharp phonemic contrast to simple *t* and was not in a mere combinatory relation with the same, this forming a striking counterpart to the purely variant character of *d* in respect to *dd*. As to the later replacement in Central Cretan of the "appropriate" spelling $\Delta(\Delta)$ [corresponding with the older *dz*] by the "inappropriate" spelling $T(T)$, and of the "appropriate" spelling $T(T)$ [corresponding with the older *ts*] by the "inappropriate" spelling $\Theta(\Theta)$, it was very likely in the former case — even in Central Crete — only an expression of graphic embarrassment on the part of the engravers, influenced by the accomplished spirantization of mediae, just as it was in Elis. In contrast to it, the latter case certainly does not represent a mere graphic reaction to the first of the two said replacements, since $\Theta(\Theta)$ for $T(T)$ can be demonstrated in the 4th cent. already, while $T(T)$ for $\Delta(\Delta)$ not before the 3rd century.⁽²¹⁹⁾ Here we seem to be encountering a real change in pronunciation, the new $\Theta(\Theta)$ either representing a geminated aspirate or a geminated spirant.

The former possibility would mean that *tt* began to be simply conceived as a geminated aspirate *tth*. The impulse might be seen in the possibility that *tt*, being a geminated phone, may have been pronounced with considerable effort, and that in Central Crete its pronunciation perhaps approached more the aspirated *tth* than the non-aspirated *t*. From the phonological point of view it is, of course, quite probable that this *tth* began to be soon conceived as a polyphonematic group *t+th*, analogical with such groups as *p+ph* and *k+kh*.—The latter, i. e. the spirantic explanation would again have to count with the possibility that as early as in the 4th cent. B. C. there existed in Central Cretan a consonantal system with two spirantic sets, a voiced one and a voiceless one, the spelling $\Theta(\Theta)$ being attributed the pronunciation $\theta\theta$. This explanation, however, has that serious drawback, that in the 4th cent. B. C. we are not yet able to demonstrate the spirantic pronunciation of aspirates in Central Crete^(222x, 223+) (the before quoted Ἄσσυβος [II?] comes from Western Crete, having, besides, an uncertain chronology, while the expressions Ἔτεθθι [II] = the Attic ἔτεσι , and πόλιθι [III—II] = the Attic πόλεσι represent most likely only an analogy to the type $\text{Ἀγκάθθι} < *t\theta i < *t\theta i < *d\theta i$ /III/; cf. Schwyzer, *GG* I 321). On the other hand, there are some arguments which testify quite convincingly against the spirantic pronunciation of aspirates in Central Cretan²⁹¹ and it is specially for this reason that we feel inclined to consider the "spirantic" explanation of the spelling $\Theta(\Theta)$ as much less creditable than the "aspirative" one.

Both in Elean and in Central Cretan it was at least to a certain extent possible to prove very early spirantization of the original *d*, and for this reason we could, in all probability, see in this phenomenon the basic impulse for changing in these dialects the affricate *dz* into the explosive *d(d)*. In the remaining two dialects, in which *d(d)* can be safely demonstrated, i. e. in Laconian and Boeotian, the situation is less favourable, because here we postulate only indirectly the spirantization of the voiced dental from the spirantization of phones *b* and *g* (in Boeotian²⁹²) — or in Laconian of the voiced labial *b* only. Besides, we have to encounter in both these dialects some chronological difficulties.

With respect to Laconian, the first document of spirantization of *b*, the word Βαστιάς [V], comes, no doubt, from the 5th cent. B. C., but even the use of *d(d)* for *dz* can be demonstrated in Laconian for the first time in the archaic era (δπι(δ)δόμενος [V ?]); and as the age of the inscription containing the latter expression is not quite certain, we cannot exclude the possibility that the document may be even more archaic. It is true, this chronological problem as such would not of necessity impair our hypothesis, since even in Laconian were likely the graphic conditions

²⁹¹ Cf., e. g., the Gortynian spellings $\Sigma\Theta$, $\Theta\Theta$, $T\Theta$ appearing in chronological succession in τίνεσθαι /litt. vetust./, ἄπ|οκρ|νεθθαι /litt. vet.] and δέκεθθαι /III/.⁽²²³⁺⁾

²⁹² Obviously leaving aside μέζεε , occurring in Hesiod (see Note 282).

for registering spirantization of mediae upon the whole less favourable than those for registering the change $dz > d(d)$, yet, it puts us on our guard. Nevertheless, even in this dialect there must have been some connection between the two changes, similar to relations we are familiar with in Elean and Central Cretan; this view is supported by the fact that even in Laconian the spelling $T(T)^{293}$ replacing the "appropriate" $\Delta(\Delta)$ could be demonstrated in several instances (the only inscriptional document is the form $\mu\kappa\kappa\chi\iota\tau[\tau\omicron\mu\acute{\epsilon}\nu\omega\nu]$ [ca. 200], cf., however, also $\beta\lambda\mu\acute{\alpha}\tau\tau\omicron\mu\epsilon\varsigma$ in Aristophanes). There is, however, another circumstance speaking in favour of such connection: it is represented by the fact that beside the Laconian parallel between spirantization of mediae and the change $dz > d(d)$ we find in the Laconian colony of Tarentum and in Tarental Heraclea a real counter-parallel, consisting in both the absence of spirantization²⁹⁴ and preservation of the affricate dz .

On the other hand, we could hardly presuppose any mutual connection between the assumed spirantization of mediae and the origin of $d(d)$ in Boeotian. It is true that in this dialect we can demonstrate the spirantization of voiced explosives both with the labial b and the velar g , the linguistic material being specially in the latter case rather old—and still older is, of course, Hesiodos's $\mu\acute{\epsilon}\zeta\epsilon'$ (= *mētea*?; cf. Schwyzer, *GG* I 208) with Z instead of Δ —but to believe that the Boeotian spirantization of mediae was occurring as early as on the threshold of the 1st millennium B. C., i. e. at the same time when the change $dz > d(d)$ was running its course there, would be too daring.

Thus, the hypothesis of the dependance of the change $dz > d(d)$ on the foregoing spirantization of voiced explosives may be applied with plausible probability to three dialects only: Elean, Central Cretan, and Laconian. The sequence of these names indicates at the same time the decreasing force of this probability, whereas Boeotian should be excluded altogether. To get fully squared up with this problem of parallelism it will be necessary to answer three more questions associated with the fact that in Greek there exist documents both of spirantization and of the change $dz > d(d)$ also in several additional dialects.

First of all, there is the question whether apart from the above-mentioned four dialects the two processes, i. e. spirantization of mediae and the change $dz > d(d)$, could not be demonstrated elsewhere. It would seem that this situation existed in Rhodos, as indicated by $\tau\acute{\omicron}\zeta'$ (VI; spirantization), and by $\Delta\epsilon\upsilon\varsigma$ and $\text{'}\rho\acute{\omicron}\delta\acute{\alpha}\lambda\omicron\varsigma$ (VI—V; change $dz > d(d)$), coming from Camirus, but, as we have already mentioned on page 152, all these cases probably represent one and the same change, that is to say some kind of locally restricted spirantization of d , while the 2nd and 3rd instance would have to be simply ascribed to hypercorrect manner of writing caused by the spirantization in question. Thus the answer to the first question would be negative.

The second question wants to know how can our hypothesis be reconciled with the fact that there exist dialects with documents of early spirantization but with none proving the change $dz > d(d)$ (Argolic, Pamphylian, and at least some sub-dialects of Arcadian, Corinthian, and to be sure of Rhodian). An answer to this question may be found when estimating in what degree there existed in these "spirantizing" dialects favourable conditions for the change $dz > d(d)$, similar to those prevailing in Elis, Central Crete, and also in Laconia. As to Argolic, the absence of this change is fully to be understood, as in the historical development of this dialect the older dz likely changed into $z+d$ before spirantization of mediae commenced (see p. 170) and before it could act as an impulse giving rise to the change $dz > d(d)$ (the Argolic metathesis $dz > z+d$ may be antedated when compared to the local spirantization of mediae if we take into account the fact that in Argolic the presupposed $z+d$ brought about by metathesis must have been changed

²⁹³ Cf. p. 147.

²⁹⁴ The only instances that might be adduced here to prove spirantization are a few Hesychios's glosses with B standing for w initially. We do not find, however, this argument plausible enough.

via $z + \tilde{d}$ into $z(z)$ as early as in the 6th cent.).—We can find a plausible explanation for the fact that neither the Pamphylian dz changed into $d(d)$. The specific Pamphylian change $n + t > n + \tilde{d}$, being a kind of prefiguration of an analogical change in Koine and resulting in Pamphylian itself in the 4th cent. B. C. at the latest in complete simplification of any $n + \tilde{d}$ into \tilde{d} (cf. $\pi\acute{\epsilon}\delta\epsilon = \pi\acute{\epsilon}\nu\tau\epsilon$ [IV]), brings us to the plausible conclusion that this new Pamphylian \tilde{d} possessed the value of an independent phoneme, preventing the phoneme dz from occupying the place of the original d that became vacant through spirantization. Although it is so far impossible to verify this supposition of ours by the existing linguistic material, a development like that would be in good accord with the phonological point of view. After the accomplishment of the spirantization $\tilde{d} > \tilde{d}$, and thus also after complete liquidation of the voiced dental the d -part of the Pamphylian phonic group $n + \tilde{d}$ could exist for a time as a mere combinatory variant of the phoneme t , occurring only after n , just as it is the case in Modern Greek (e. g. $\acute{\epsilon}\kappa\omicron\nu\tau\epsilon\varsigma$, pronounce [$\acute{\epsilon}k\omicron\nu\delta\epsilon\varsigma$]), yet, subsequent to an early loss of the preceding n the remaining \tilde{d} became probably soon a completely independent phoneme, this phenomenon having no parallel in Modern Greek.

In comparison with Argolic and Pamphylian, where the historical development gave rise to the above-mentioned unfavourable conditions for the change $dz > d(d)$, in Corinthian, Arcadian, and Rhodian nothing similar can be pointed out that would act as prohibition of this change. In the case of these dialects, we, of course, have to bear in mind that the respective documents demonstrating spirantization of mediae display within each of the three mentioned dialects upon the whole a distinctly local, and partly even a provincial character. Such locally restricted spirantization of mediae, whose impulse may have even come from outside, need not have been obviously accompanied with all the phonetical consequences that spirantization usually had in wake. The provincial character of the Corinthian, Arcadian, and Rhodian material becomes especially distinct, if compared with the frequent and upon the whole rather safe documents of spirantization of mediae from such significant centers of Elis, Central Crete, and Laconia as were Olympia, Gortys, and Sparta.

And finally, an essentially negative answer must inevitably be given also to the third question, running as follows: Did the change $dz > d(d)$ occur in any of the Greek dialects without any existing document of a concurrent spirantization of mediae? To be sure, such material as Aristophanes's literary documents from Megarian, the Corinthian $\Delta\epsilon\upsilon\varsigma$, the Phocian $\delta\nu\gamma\delta\iota$ and the Cyrenaean $\textit{Ἀλδδδευιϗ}$ must be excluded from our consideration (see explanations of these expressions on page 152), and neither can we refer to Boeotian as it was spoken in the beginning of the 1st millenium B. C., when this dialect already disposed of $d(d)$, but so far remained probably unaffected by spirantization. The change $dz > d(d)$ evidently occurred in Boeotian, as we know from pp. 147 and 153, in a substantially earlier period of development than was the case in other Greek dialects, the conditions being different and characteristic just of Boeotia and practically unknown to us,²⁹⁵ which means at the same time that any reference to Boeotian in this respect would hardly represent a menace to our hypothesis. The latter holds good, after all, also for Thessalotis, the only one difference being that here, in contrast to Boeotia, spirantization of mediae is never attested.

If the negative answer to this 3rd question is justified, it would mean an extra significant support of our theory. The 2nd objection, pointing to the fact that spirantization of mediae was not accompanied in some dialects by the change $dz > d(d)$, can namely hardly shake our hypothesis, as, after all, all the spirantizing dialects need not have felt the necessity to fill the gap that remained vacant after the change $\tilde{d} > \tilde{d}$ had occurred. If, on the other hand, we had met in

²⁹⁵ See, e. g., our discussion of the Boeotian (and the Thessaliotic) $d(d)$, arisen (possibly, but not very convincingly) through contamination of Aeolic $z + d$ and West Greek dz , on p. 153; see also the discussion of Megarian $d(d)$, on the same page.

any of the Greek dialects, specially in the historical phase of its development, with quite safely established documents of the change $dz > d(d)$ but not of spirantization of mediae at the same time, it would be a much more formidable argument against our hypothesis, for it would imply the possibility that the change $dz > d(d)$ may have been running its course without connection with the spirantization $\bar{d} > \bar{d}$ in Elean, Central Cretan, and Laconian, as well.

b) Apart from the association of spirantization of mediae with the change $dz > d(d)$, which has just been discussed, in some of those dialects that experienced metathesis $dz > z+d$ spirantization of mediae affected also the phonic group $z+d$. This concerns at least the Argolic, Attic, and Ionic change of $z+d$ into $z(z)$, as betrayed by the before mentioned signs ΣZ used for Z , or even Z used for Σ , or \mathcal{Z} for Z . At the same time it is worth noting that in these dialects the above orthographic peculiarities appear upon the whole simultaneously with the first established demonstrations of spirantization of mediae (cf. the Argolic $\delta\kappa\acute{\alpha}\sigma\zeta\omicron\iota\tau\omicron$ [VI—V] with $\Phi\iota\sigma\zeta\epsilon\iota\epsilon$ [according to Buck³ “early”], the Attic $\acute{\epsilon}\pi\epsilon\psi\acute{\eta}\phi\iota\sigma\epsilon\nu = -\zeta\epsilon\nu$ [340] with $\acute{\omicron}\lambda\lambda\acute{\omicron}\varsigma$ [318], and the Ionic $\mathcal{Z}\mu\nu\upsilon\upsilon\alpha\tau\acute{\alpha}\omega\nu$ [post 190] with $\acute{E}\delta\delta\omicron\mu\acute{\iota}\omicron\nu$ [ca. 200]). All this considered, we could presuppose that in the consonantal group $z+d$ the d-component succumbed in each of these dialects to the same spirantization as any other local d at its respective time. Thus the process may have run as follows: first there originated $z+d$, next this $z+d$ changed by assimilation into the independent phoneme zz ,²⁹⁶ giving rise through time and further simplification — first probably in the beginning of the word only — to the non-geminated z . We feel entitled to hold this hypothesis all the more, since with this chronological coincidence of spirantization of mediae and the change $z+d > z(z)$, which we have discussed in reference to the three dialects, there corresponds in Thessalian down to 200 B. C. (also Thessalian has ΣZ for Z about 200 B. C. [$\mu\epsilon\tau\alpha\chi\eta\mu\alpha\tau\acute{\iota}\sigma\zeta\epsilon\nu$, III—II], even though spirantization of mediae cannot be established in any period of Thessalian dialectical development whatsoever) and in Lesbian to the end of its existence — i. e. in the two remaining dialects, affected by metathesis — a consistently opposite parallel, consisting both in the absence of documents pointing to spirantization of mediae and in the preservation of the phonic group $z+d$.

X. By discussing these changes in the proto-Greek consonantal system we have put together enough of differential material to be able to attempt an outlining of the entire development of the proto-Greek consonantal system from the presumed conditions prevailing in the proto-Greek stage down to the time when the specific features of the single dialects fade, swallowed up by the rising tide of Koine.

When using the expression “proto-Greek”, we have in mind the language which is the common cradle of all the gradually arising dialectical differences, ascribing it, at least theoretically, a uniform consonantal and vocalic system. It is, of course, possible that in our effort to reconstruct this proto-language on the basis of analyzed material, which is mostly many centuries younger, we have substantially simplified the conditions that actually existed in those ancient times, and that our assumption of a uniform consonantal system in the early centuries of the 2nd millennium B. C. is rather an a priori speculation. Anyway, so far we are utterly unable to say anything more definite about the potential dialectical differences of that time, especially with regard to the question whether such differences, if any, had already then a real systemic significance — in spite of the opposite assertion of Pisani, who believes in a threefold Indo-European foundation of Greek.²⁹⁷

As to the prospective terminus of our investigation period, we have to fix that late enough to

²⁹⁶ Nevertheless, this stage seems to have been of very short duration. This accounts for our preference of the designation $z(z)$, employed throughout the present book. For more details see p. 174sq.

²⁹⁷ See esp. Pisani, *RhM* 98, and *Lingua Posn.* 7.

guarantee that our final systemic classification of the Greek dialects has been accomplished at a time when all the main dialects were represented by a sufficient number of documents, while early enough, on the other hand, to avoid classification of such inscriptions that were already distinctly influenced by Koine. This final boundary would best correspond with approximately 350 B. C.

In between these two chronological limits, i.e. the early centuries of the 2nd millenium B. C. and the period about 350 B. C., we shall be inserting partial synchronic systemic analyses, attempting it usually after dealing with some major complex of systemic changes. It is, however, necessary to warn the reader that we shall hardly be able to escape schematizing, at least to a certain extent. First of all, all the phonetic changes — especially the older ones — cannot be satisfactorily fixed from the chronological point of view. Then, some of the identical changes were occurring in different dialects at different times, while some other phonic processes were passing through multiple phases not easily distinguishable from each other as to time. And finally, it often happened that one complex of changes was overlaying another one, so that any attempt to draw a line between them in order to acquire a documentable survey may occasionally give the impression of a forcible perspective.

Thus it will be necessary to see in our partial analyses, and specially in the systemic schemes presented on tables (pp. 183sq.), mere working implements, whose object it is to supply us, even at the cost of certain inevitable distortion, with at least an approximate picture of the systemic relations existing between the single Greek dialects at various times of their development.

A) The starting point of the consonantal systems of every Greek dialect is the consonantal system of primary Greek. A sketch of this system is to be found on Table A₂, page 184. It comprised twelve non-palatalized explosives, three palatalized explosives which were geminated at the same time, the phoneme *s*, maybe already with its antevocalic or intervocalic variant *h*, next the phoneme *w* and also *j*, and finally four non-palatalized liquids and nasals supplemented by another four, the latter being palatalized and geminated. Thus the total number of consonantal phonemes in this system was 26. The system, to be sure, is associated with a more advanced stage of primary Greek implying the assumption that fusion of *k'k'* and *t't'* as well as of *g'g'* and *d'd'* must be antedated. There existed namely a still more ancient primary Greek with both *k'k'* and *g'g'* as independent phonemes, the number of phonemes exceeding thus by these two, and perhaps also by *s's'* and *w'w'* that of the stage we allude to. (See Table A₁.)

B) The first differentiation originating in the system A₂ was effected by the so-called first assibilation. This phenomenon may also be called the first depalatalization, as it represented the earliest attempts to liquidate palatal consonants. This occurrence affected at the latest early in the 3rd quarter of the 2nd millen. B. C. that part of the Greek speaking world which later gave rise to the Attic, Ionic, Arcadian, Cyprian, and Pamphylian dialects, i. e. region comprising dialects which, according to Risch, have developed from Mycenaean and which he classifies as Southern, and we as East Greek dialects.²⁹⁸ The 1st assibilation resulted in the transformation of the "monomorphematic" *t(h)j* into a phoneme for which we use the transcription *tf*, according to Allen. Our reason for doing so is more the desire to facilitate our work than any substantiated belief in this phonetic value esp. if Mycenaean has *to-so* for **totjos*.^{298a} In this way the number of phonemes in the group of Greek dialects alluded to has risen to 27. We still take into account the palatalized phonemes *t't'*, *d'd'*, *p'p'*, because the geminated palatals that

²⁹⁸ Risch does not explicitly mention Pamphylian among his Southern dialects. But as he does not mention it in any other connection either, it seems very probable that he tacitly regarded Pamphylian as organically belonging to the Arcadian-Cyprian group of dialects.

^{298a} Cf., however, Note 299.

had remained unaffected by the first assibilation probably retained their palatalized character. This fact of their keeping the original form was most likely associated with another phenomenon: neither *j* had ceased at that time to exist as an independent phoneme as yet. As we saw, this assumption finds support also in Mycenaean in cases such as *jo-i-je-si*. In the rest of the Greek dialects the older system was preserved unchanged. (See Table B.)

C) The effects of the second assibilation on the system were, however, more complicated. It is in this connection that the term second depalatalization would be quite appropriate, for this process, which started probably somewhere about the beginning of the last quarter of the 2nd millennium B. C., resulted in total liquidation of all palatals in each of the Greek dialects, this phenomenon being likely connected with the disappearance from the system of *j* as well, at about the same time. These palatals, however, were also geminated, and thus it stands to reason that this depalatalization must have implied also degemination. And yet, this process asserted itself with all its consequences in Cyprus only, as the local Greek population evidently found itself, soon after the year 1200 at the latest, in considerable isolation from the rest of the Greek speaking world, whereas the other dialects were affected by the degemination only partly, and not all to the same extent. Most of the Greek dialects had namely retained in their consonantal system an only geminate, i. e. *ll*, the same being depalatalized, to be sure, while in Lesbian and Thessalian all the four geminated palatal nasals and liquids got transformed into non-palatalized geminates. This Lesbian-Thessalian phonological peculiarity got even more pronounced in the course of time, when the liquidation of consonantal groups that elsewhere were subjected to the so-called first compensatory lengthening gave rise to other words with geminated *ll*, *rr*, *mm*, *nn*. As to the sonant aspect of the consonantal system, therefore, the two extreme dialectical types, i. e. Cyprian on the one hand (without any geminates) and Lesbian-Thessalian on the other (with four sonantal geminates), remain rather isolated, whereas the majority of the Greek speaking world maintained its progress with one geminate only, the latter being *ll*.

On the other hand, in the explosive aspect of the consonantal system the phonematic differentiation caused by the first assibilation kept asserting itself; the former East Greek substitute for monomorphematic *t(h)j*, for which we used the sign *tf*, did not fuse at that time with the analogical sound that originated from the polymorphematic *t(h)j*, and from *k(h)j* as well as *tw* but it evidently gave way to the pressure of this sound being likely transformed into a phonetic quality which might be fitly transcribed as *ts*. As the case is, we apparently have to do in the East Greek dialects of that time with three voiceless sounds of sibilant character, that is to say with *tf*, *ts*, and *s* — in contrast to two such sounds only, *tf* and *s*, in the remaining Greek dialects. Otherwise, of course, in all the Greek dialects without a single exception the following phenomena occurred in the same period: *dʒ* originated from *d'd'* (including evidently also the old *g'g'*) and partly also from *j*-, the rest of *j*- fused with *h*-, and *-j*- was completely liquidated, and *p'p'* got transformed into the polyphonematic consonantal group *p+t*. Finally, *h* very likely ceased to exist by that time as an antevocalic opening variant of *s*, turning into a mere signal of the start of a word, while the intervocalic *h* disappeared altogether. This change, of course, did not affect in any way the number of phonemes.

Upon the whole we may say that in the last quarter of the second millennium B. C. the Greek dialects disintegrate, as to their consonantal system, forming four groups. One group comprises a great majority of Greek idioms, that retained the geminate *ll*, and passed only through the second assibilation and thus had in their system only one voiceless affricate, i. e. *tf*. In this type we distinguish 21 consonantal phonemes. In contrast to it, the East Greek group of dialects, without Cyprian, to be sure, disposes of 22 phonemes (the additional one being *ts*). Then there is the third group formed by Cyprian only, and it has again 21 phonemes like the first-mentioned group, but in this number we find the East Greek additional phoneme *ts*, while *ll*, on the other hand, is missing. And finally there is the last group, the Lesbian-Thessalian, isolated probably as early

as at that time from Boeotian, and disposing of 24 phonemes (when compared with the first group it had three more sonant geminates). (See Table C.)²⁹⁹

D) The next significant epoch in the history of differentiation of the Greek dialects is the end of the second and the beginning of the first millenium B. C. This period involves mainly the earlier phases in the elimination of labiovelars. For the systemic differentiation of dialects it was, however, less important that in most Greek dialects the labiovelars produce before the e-sounds and partly also before the i-sounds dental sounds when compared to the labial sounds of the Aeolic dialects. Of greater significance was the fact that in Arcadian and in Cyprian the dental substitutes for such labiovelars apparently existed still about 500 B. C. in the stage of affricates, this being an archaic phenomenon on the part of Arcadian and Cyprian. If we take, on the other hand, for granted a comparatively early origin of dental explosive substitutes for these labiovelars in the other non-Aeolic dialects (cf. the occurrence of dental explosives instead of labiovelars in Homer and in the oldest preserved inscriptions in the various non-Arcadian-Cyprian and non-Aeolic dialects), we have to draw the conclusion that in this respect Arcadian and Cyprian differed from the other dialects surely as early as in the beginning of the first millenium B. C., and that the Arcadian and the Cyprian consonantal systems have since had in contrast to them two affricate phonemes more (the total number being now 21 or 20 respectively). Thus a definite disintegration of the whole East Greek block of dialects took place now, subsequent to the earlier separation of Cyprian, which had not retained the primary Greek *ʎʎ*, not even in its depalatalized form *ʎ*. In the light of this discussion we have to attribute to Attic-Ionic 19 phonemes, to Lesbian-Thessalian 21 phonemes, and to all the rest of the non-Arcadian-Cyprian dialects 18 phonemes. As to Pamphylian, it is hard to decide whether its system agreed with the Attic-Ionic or with the Arcadian one, the first possibility is, however, more probable.

Of course, all these conclusions can be taken for granted, provided that all the sounds of affricate or sibilant character, no matter of what dialectical origin they were, still possessed at that time the validity of independent phonemes, i. e. that for example in Arcadian and Cyprian the then existing affricate products of the first and the second assibilation shifted under the pressure of the new *ʎʎ* and *dʒ* (< *k^w*, *g^w*) to *ss* (as regards the then existing *ʎs*- product of the 1st assibilation), or to *ts* and *dz* (as far as the *ʎʎ*- and *dʒ*- outcome of the 2nd assibilation is concerned), and yet no fusion of phonemes either among the voiced or the voiceless affricates and sibilants took place.

Whether by that time *ʎʎ* and *dʒ* springing from the second assibilation had passed into *ts* and *dz* in all the remaining Greek dialects, too, and whether in connection with this process the Attic-Ionic-Pamphylian *ʎs*, which had its origin in the first assibilation, was now already transformed into *ss*, can hardly be proved, yet it remains very probable. (We feel induced to

²⁹⁹ Mycenaean could most probably be located somewhere within the oldest phase of the systemic type C. It had very likely already accomplished the beginnings of the second assibilation; the substitute for the monomorphematic *t(h)j*, subjected to the first assibilation, was then probably *ʎs* and was by that time reproduced — owing to the absence of any other, more suitable sign-series — by the series of S signs already, whereas the substitute for *k(h)j* (and probably also for the polymorphematic *t(h)j*) still preserved its “palatal character” to such an extent that the latter proved to be a stronger factor in selecting suitable spelling than the respect for the voiceless character of this substitute, and was, therefore, reproduced by signs of the Z group, which were employed also for similar voiced substitute for the proto-Greek *dj*, *gj*, *j*-. — At the same time, it is quite possible that Mycenaean had already accomplished depalatalization changes with liquids and nasals (as for the Linear B graphic doublets *RA* : *RA*₂ : *RA*₃, it may have been just the case of historical orthography, still retaining signs whose existence was no more justified from the phonological point of view).

insert this change into our scheme of the systems of the respective period chiefly in order to avoid the assumption of such differences between Arcadian and Cyprian on the one hand and the remaining Greek dialects on the other hand, as cannot be demonstrated by the known linguistic material.) (As to the last three paragraphs, consult Table D.)

E) The scheme of the systems which we have offered here has, of course, only an auxiliary and theoretical value. In fact, it may never have existed as such, for on the threshold of the first millenium B. C. other changes, important for the classification, occurred in the Greek speaking world. One of them was the Boeotian transformation of the affricates *dz* and *ts* into *d(d)* and *tt*,^{299a} the latter phenomenon spreading also to Attica, Euboea, and being at the same time attested in Thessaly as well, whereas the former is to be found also in Thessalotis (and maybe in Megaris). It is true, this process did in no way affect the number of the consonantal phonemes in these dialects, nevertheless some new phonological relations arose within the local consonantal systems.

Thus, for instance, in Boeotian the number of sounds of sibilant or affricate character got now reduced to *s* only, for the local consonantal system had been deprived of the two affricates *dz* and *ts*, their places being taken by the explosive geminates *d(d)*, *tt*. An analogical process went on very likely also in Thessalotis, even if the material supplies rare demonstrations of *d(d)*, *tt*, and as to *tt*, its occurrence is not restricted to Thessalotis only, but can be met with here and there all over Thessaly. The respective picture of Thessalian apart from Thessalotis reminds us rather of the same picture from Attica and Euboea, where it was likewise only the affricate *ts*, and not *dz* that was changed into an explosive geminate. (Attic and Euboean may be said to differ here from the non-Thessaliotic Thessalian so far that with the Aeolic population of Thessaly the change *ts* > *tt*, which had probably its source in the overlaying of the Aeolic foundations of the prospective classical Thessalian (and Boeotian) with the dialect of the invading West Greek population, encounter a stronger resistance than in Attic and Euboea, and that it survived to the classical period from causes hitherto unknown in a few isolated words only.)

To be sure, this phonological disparity of the Attic-Euboean-Thessalian type of system is not easy to explain. It may, however, be justly assumed that it was the result of another change occurring approximately on the threshold of the first millenium B. C. in the Greek North-East. We have in mind the metathesis *dz* > *z+d*, which represents in non-Thessaliotic Thessalian, Lesbian, Attic, Ionic, and very likely also in Argolic the disappearance of one phoneme from the consonantal inventory of these dialects. Taking into consideration that the beginnings of this change, as it was mentioned before, would likely have to be ascribed to the pre-colonization period, it appears highly probable that the above-mentioned metathesis was in Attica, Euboea, and Thessaly (Thessalotis exc.) of an older date than the possibility of the local realization of *dz* > *d(d)* and *ts* > *tt*. This taking place, the change *dz* > *d(d)*, could, of course, no more assert itself in the above-mentioned regions, for *dz* was there at that time non-existent. The hypothesis about the Attic and Euboean metathesis being older than the Boeotian invasion of *d(d)* and *tt* finds support mainly in the fact that metathesis can be demonstrated all over the Attic-Ionic territory (that is to say, it was so old as to enable the Ionic colonizers to transfer it to the Cyclades and Asia Minor), while the change *ts* > *tt* is restricted in the Attic-Ionic sphere to Attica and Euboea alone (i. e. the spread of this isogloss presupposes the Attic-Ionic settlements to exist just as we know them from the classical period). As to when this metathesis occurred

^{299a} When alluding in this work to the Boeotian-Thessaliotic innovation tendency to change *ts*, *dz* into *tt*, *d(d)* as to a „Boeotian change“, we do so just to employ a more concise formulation without intending positively to ascribe the Thessaliotic indications of these changes a Boeotian origin.

in Argolic, it is not easy to fix the time, but certainly it must have taken place before the 6th century B. C., for by this time the Argolic $z+d$ can be demonstrated as transformed into $z(z)$.

From the phonological point of view it should be pointed out that with the metathesis $dz > z+d$ taking place one independent phoneme is lost in the above-mentioned dialects, for the originating $z+d$ must be taken for a polyphonematic group of two consonants, of which the first was merely a combinatory variant of the phoneme s .

Thus the elimination of the labiovelars, the Boeotian changes $dz > d(d)$ and $ts > tt$ (including their spread beyond the Boeotian frontiers), and the metathesis $dz > z+d$ contributed considerably towards complicating the systemic aspect in the Greek dialects on the threshold of the first millenium B. C. It was mainly the old Attic-Ionic-Arcadian-Cyprian relations that got disturbed, this being due partly to the rather long preservation of Arcadian-Cyprian affricates that replaced the labiovelars before the e-sounds and, to some extent, even before the i-sounds, and partly due to the three isoglosses, which formed a closer affinity between some, if not all, of the Attic-Ionic dialects and their Lesbian-Thessalian or even Boeotian neighbourhood. In this way arose a differentiation in the consonantal system even within the Attic-Ionic region, the gulf between Lesbos and Thessaly on the one hand and Boeotia on the other becoming deeper as well. Thus an extensive atomization took place in the Greek dialects not belonging to the West Greek group, the nearly complete uniformity of the consonantal system in the West Greek dialects (except Argolic) forming a striking contrast to it.

All these changes having occurred, the Attic-Ionic dialects have 18 phonemes each (all of them are short of dz , but there is a difference: Attic and Euboean have adopted the explosive geminate tt in place of the primary Greek polymorphematic $t(h)j$ and also in place of $k(h)j$ and tw , whereas in Asia Minor and in the Cyclades ts has been retained), Arcadian has 21 phonemes and Cyprian 20 (both of them, when compared to Attic and Ionic, have the additional tf , dz , and dz), Thessalian and Lesbian have 20 phonemes each (both of them have now dropped dz), Thessalotis has 21 phonemes (without the change $dz > z+d$ having taken place, and with $d(d)$, tt), Argolic has 17 phonemes (likewise without dz), and Boeotian plus all the other Greek dialects have 18 each (Boeotian, however, differing from the rest by having its explosive geminates $d(d)$, tt , while the others possess the affricates dz , ts). Let us add that Pamphylian has 19 phonemes, having the additional dz when compared with Attic and Ionic. (See Table E.)

This scheme, to be sure, holds good only with the assumption that all the sounds of affricate or sibilant character, that may have arisen in any of the dialects in the course of its development, retained in each of the dialects their phonematic independence. Another possibility, however, must be admitted: the assumed Attic-Ionic and Arcadian-Cyprian ss as a substitute for the monomorphematic $t(h)j$, and for $t+s$, $d+s$, and $s+s$, may have already fused with s , which would mean that each dialect of the two groups had one phoneme less. Apart from that there may have been also other individual shifts in the quality of the affricates, but in view of the shortage of the respective linguistic material we are quite unable to follow them.

F) The first quarter of the first millenium B. C. is evidently the cradle of another disturbance of the consonantal system, for some of the dialects, at least, began to display already the tendency to eliminate the phoneme w . This change, however, is extremely hard to insert in our schemes of the system, as this process occupied in the single dialects a pretty wide range of time. Yet, as we have mentioned already, we may essentially take for granted that in some of those Greek dialects which are geographically connected with the Aegean Sea a radical liquidation of this phoneme occurred comparatively early, while in the other Greek dialects it was rather a gradual process of ousting the phoneme from some special positions in the word. Thus we need not run the risk of being inaccurate when assuming that the said phoneme was missing in Ionic and in Attic, on Lesbos and in East Aegean Doric about 600 B. C. As to the rest of the Greek dialects, its complete dropping appears to be at this time highly improbable.

In this way the number of phonemes in the above-mentioned dialects got again reduced by one in each: in Attic and Ionic to 17, in Lesbian to 19 (in contrast to Thessalian with its 20 phonemes) and in East Aegean Doric to 17 (in contrast to the other West Greek dialects having with the exception of Argolic 18 phonemes each). This change means, therefore, an accentuation of close relations between the single Ionic, Aeolic, and Doric dialects in Asia Minor, the close Attic-Ionic affinity being obviously preserved, but at the same time the occurrence of this isogloss is in total accord with the then displayed abatement of direct relations between Lesbos and Thessaly as well as perhaps between East Aegean Doric and the West Greek mother dialects. In contrast to the metathesis $dz > z+d$, whose center was probably in European Greece, the impulse to liquidate w came obviously from Asia Minor, and Attic was affected by it only owing to its close connections with Ionia.

Somewhere between 900 and 600 B. C. further shifts of the products of the former first, second, and third asibilations took place. First of all, the Attic-Ionic phoneme s must have absorbed within this period at the latest, if not earlier, the hitherto existing assumed Attic-Ionic phoneme ss , comprising the original monomorphemic $t(h)j$ as well as the original $t+s$, $d+s$, and $s+s$; the frequent unsteadiness of the Homeric spelling of $\Sigma\Sigma$ and Σ in words that originally contained these primary Greek formations speaks namely in favour of this chronology. The accomplishment of the said change means for the Attic-Ionic dialects the loss of one phoneme, even if the very position of ss was probably, at least in the majority of settlements of Ionia and the Cyclades, immediately after occupied by the hitherto existing affricate ts , which involved both the original polymorphemic $t(h)j$ and the original $k(h)j$ and tw . This, of course, does not say that it took the same time to accomplish this shift all over the Ionic territory. Sporadic employment of the sign T in the Ionic of Asia Minor in the 6th—5th centuries B. C. shows us that here, at least, the older ts was preserved in some places for quite a long time.

Analogical shifts of the hitherto existing ts and dz to ss , $z(z)$, and also of ss to s very likely occurred in Arcadian. It is true, in this dialect it is possible to prove directly the existence of the system with this shift and simultaneously with another shift, namely that of $tj > ts$ and $dj > dz$ (here we have to deal with substitutes for labiovelars before e-sounds and i-sounds) as late as about 500 B. C., nevertheless, it is quite probable that the beginning of these shifts is of a substantially older date, reaching very likely back to a time subsequent to the liquidation of labiovelars before the above-mentioned sounds. It was probably as early as then that under the influence of the new tj , dj , originated from such labiovelars, excessive phonematic overloading occurred in the affricate-sibilant part of the Arcadian consonantal system. Since this pressure certainly exercised its influence under analogical conditions also in Cyprian, we place in our scheme the latter dialect on a level with Arcadian. On the other hand, in Pamphylian the then existing ts was very likely preserved down to the fourth century at least, as we can judge by the sign ψ , which can be demonstrated in Sillyon at that time as a substitute for the original $k(h)j$; this makes it highly probable that Pamphylian had preserved also the phoneme dz up till then. The accomplishment of the change $ss > s$ may be assumed here as a sort of working hypothesis, just to avoid excessive differentiation in the East Greek dialects in face of inadequate evidence. As a matter of fact, the change, of course, may have occurred even later, for in Pamphylian we are not able to prove the phonematic existence of any new couple of affricates originating from labiovelars, which could serve as an impulse of increasing the systemic pressure on the hitherto existing ts , dz , ss . Nevertheless the Attic-Ionic dialects, in which the change $ss > s$ was accomplished also without the above-mentioned pressure, indicate that the working hypothesis we have alluded to is not altogether improbable, too.

In contrast to Pamphylian, and in accord with Attic-Ionic and Arcadian-Cyprian, the shift of the affricate ts into ss may have occurred rather early even in some of the dialects that do not belong to the East Greek type. Owing to the shortage of inscriptions originating before the 6th

century B. C. we can hardly find concrete evidence to show us which dialects were concerned. On the other hand, there is quite reliable evidence of the fact that Central Cretan positively had at its disposal as late as 600 B. C. the affricate *ts* masked by the sign *I*. We believe, however, that we do not run the risk of a major inaccuracy if we assume both in the case of Lesbian and Thessalian as well as of all the West Greek dialects, Central Cretan excepting, the accomplishment of the change before the end of the 7th century, at the latest. When doing so, we might be liable of committing the error of ascribing *ex eventu* this change, which was sure to penetrate beyond the East Greek boundary even before 600 B. C., to some dialects, in which it may not have occurred as yet, even though this event was not far off. Should this be the case, we have separated these dialects from Central Cretan somewhat earlier and thus joined them prematurely to the majority of the East Greek dialects. If, however, the opposite standpoint had been taken, and if we had presupposed the existence of the quality *ts* as late as about 600 B. C. in all those dialects that are without any direct documentation of the quality *ss* in the 7th cent. B. C., we should be guilty of a greater distortion of reality, as this would mean separating in this respect dialects, such as Attic on the one hand and Megarian on the other hand, although in these two dialects the change *ts* > *ss* was sure to occur in close connection from the chronological point of view.

We likewise know comparatively little about the phonetic character of the substitute for the old *dj*, *gj*, *j*-. We have ascribed it pure sibilant value only in Arcadian and Cyprian, so far. In contrast to it, it was still about 600 B. C. that Elean and Central Cretan positively retained the affricate character of *dz* (otherwise it would have been impossible for the new substitute *d(d)* to replace later in these dialects the earlier one), and so did Laconian until about 700 B. C., when Tarentum was founded, and maybe even a good deal longer. As for the rest of the Greek dialects, we can this time hardly assume any early accomplishment of the change *dz* > *z(z)*, as we could do it in the case of *ts* > *ss*, for the former change lacked such impulse as could effect it to any greater extent. While in the case of *ts* > *ss* it was evidently the matter of a rather old innovation, accomplished as early as in the 8th cent. in such an important group of dialects, i. e. in Attic-Ionic, the same group could not supply an analogical impulse for the accomplishment of the change *dz* > *z(z)* as well for the simply reason that after the accomplishment of the metathesis *dz* > *z+d* there existed in this group no *dz* whatsoever. And the influence of Arcadian was not strong enough alone to secure for this innovation assertion of a wider extent. When taking all these various conditions into account, we are right, as we believe, in assuming in the majority of Greek dialects still about 600 B. C. the existence of the affricate *dz* side by side with the pure sibilant *ss*.

Finally it is only right to allude here to another change, which, it is true, does not possess any systemic significance, but whose beginnings probably also go back to the period we deal with. We mean the so-called psilosis, which did away with the possibility of distinguishing the vocal beginning of a word with the help of the contrast ζ and ψ . This phenomenon may be safely said to have taken place before 600 B. C. already in the Ionic of Asia Minor and in Lesbian, and probably also on Cyprus, in Central Crete, and in Elis.*

To finish up with the period from 900 to 600 B. C., we may say that at that time Greek dialects became different as to the number of phonemes as follows: towards the close of this period among the East Greek dialects it was Ionic and Attic that were short of two phonemes (of *w* and *ts*), which means they now possessed 16 phonemes in all, while Arcadian (and likely Cyprian), and also Pamphylian were short of one phoneme only (of one voiceless affricate), having now 20 or 19 or 18 phonemes respectively. Next it was Lesbian that lost one of its phonemes, becoming thus with its 19 phonemes different from Thessalian, which preserved its 20 phonemes. As to the systemic classification of the West Greek dialects, the change *ts* > *ss* was of most considerable significance for this period—from the perspective point of view, at least—, for it meant the first step in the process of all the other West Greek dialects growing different from Central Cretan.

Besides, in East Aegean Doric the phoneme *w* disappeared, reducing thus the number of consonantal phonemes to 17. (See Table F).

G) But now we are approaching the spirantization of mediae, a process, which represented most likely the strongest influence that affected the consonantal system of a great number of the Greek dialects in the first millenium B. C. Even this was a phonic process, that had its course in different Greek dialects at different times, for also this process affected conspicuously (partly maybe even before 600 B. C.) first only a certain group of Greek dialects, while in the rest it was, so to say, lying in wait, provided, of course, that it took place at all; of the more important dialects this reservation refers specially to Lesbos, Thessaly, Cyprus, and the dialects of the North-West.

Those that according to our opinion accomplished an early spirantization of mediae were definitely Elean, Central (and maybe Western) Cretan, Laconian, Boeotian, Pamphylian, and probably also Argolic, this, however, not being so sure; as far as Arcadian, Corinthian, and Rhodian are concerned, the local evidence of early spirantization can hardly be considered as sufficiently weighty for the dialect as a whole.

As to the character of the spirantization tendency, we encounter here an innovation, it is true, but not of such nature as to assume the character of one coherent isogloss, but rather a phenomenon which gives you the impression of having been brought into existence through the influence of non-Greek environment in the borderland of the Greek speaking world, in places where the centrifuging solidarity grew to be rather weak. This assumption is just that which explains the fact that in some dialects the spirantization of mediae can be regarded only as a phenomenon of locally restricted character (Arcadian Mantinea and Phigalia, Corinthian Phlius and the Corinthian colonies in Western Greece, Rhodian Camirus). At the same time, it is quite possible that the actual beginnings of this spirantization process were considerably older than we guess, yes, that they may have coincided with the period of great ethnical migrations from the end of the second and the beginning of the first millenium B. C.

As to the influence of the spirantization of mediae on the differentiation of the consonantal systems in single Greek dialects, we may ascribe chief significance to the fact that it effected a complete transformation of the systemic relations between the hitherto existing three sets of explosives. Nevertheless, this process was not accompanied by any greater changes in the number of phonemes, the only important occurrence likely being the fuse of the voiced labial *b*, after the accomplished spirantization, with the hitherto existing phoneme *w*, with which it thus formed one unit of the consonantal system. This process started when the original *w* still existed in all the spirantizing dialects, in the opening position at least, and this fact maybe prevented the total loss of the etymological *u* in some of them but meant for them the reduction of the number of phonemes by one. Thus the West Greek dialects, subjected to spirantization, had 17 phonemes each (with the exception of Argolic, which missed in addition *dz* as well), in contrast to the 18 phonemes in those non-spirantizing West Greek dialects that had preserved the phoneme *w* (East Aegean Doric, on the other hand, had only 17 phonemes, owing to its early loss of the *w*). Similarly also Boeotian disposed of 17 phonemes, the same holding good even for Pamphylian, provided, to be sure, that the threefold spelling *ϝ*, *Ϟ*, *Ϣ* masked here only one single phoneme *w*, or *b*, if you prefer the latter.

Thus, the early spirantization of mediae is at the same time the first consonantal systemic phenomenon that managed to divide West Greek into two large distinctly different groups, into the West Greek dialects with early spirantization and at the same time mostly⁽²³⁴⁻¹⁾ with a long-vowel three-grade system—at least when the situation is considered in the light of the early centuries of the 1st millenium—(Elis, Central and Western Crete, Laconica, Argolis),^{299c} and into

^{299c} Argolic had namely a three-grade long-vowel system till the accomplishment of the equivo-calic contraction *e + e*, *o + o*. See Bartoněk, *Charisteria*, and *Sborník*, E 6.

dialects without safely proved early spirantization, characterized at the same time mostly by the very early innovation of the long-vowel four-grade system (especially Corinthus, Megaris, dialects of the North-West, and East Aegean Doric, this latter dialect being added to this type with some reservation,¹²³⁵⁺¹ for it carried the three-grade system in fact till the period of the equivocal contraction $e+e$, $o+o$). It is plain that spirantization of mediae was in no way dependent on either the genetic or geographic relations, for as it happened, the mother Laconian acquired now a systemic difference when compared to its derivative, the dialect of Tarentum and Heraclea, the same taking place with Central and perhaps Western Cretan when compared to the Eastern Cretan dialect. In comparison with this important ingression of the spirantization process into the systemic relations prevailing among the West Greek dialects, the older systemic isoglosses, which had before torn away partly Argolic, partly East Aegean Doric, and partly even central Cretan from the West Greek uniformity, were much less significant. (See Table G.)

H) This process of differentiation, however, continued, producing further changes in the hitherto existing substitutes for the primary Greek palatalized dentals and velars. In connection with the accomplished spirantization, and specially in connection with the fact that the change $d > \tilde{d}$ made the place for the voiced dental vacant, the transformation of dz into $d(\tilde{d})$ occurred very likely in the course of the 6th cent. B. C. in Elis, Central Crete, and Laconica (in the latter region the occurrence may have been of an earlier date), the said transformation being some analogy of the former similar change in Boeotian. Neither this innovation had the character of a coherent isogloss, and in no way indicates a closer affinity of the dialects concerned. We should rather consider it to be an independent accomplishment of the same phonic change occurring under similar specific conditions. The parallel "voiceless" phonic change $ts > tt$ occurred, however, only in Central Crete, not in Elis and Laconica, which again resulted on the part of Central Cretan in a still greater structural approach to Boeotian, but once more without any indication of closer affinity. Even though the above-mentioned difference between Central Cretan and between Elean and Laconian must be traced back to the fact that in Elis and Laconica ts had changed into ss before the spirantization process, whereas Central Crete had never witnessed this change at all, yet this difference represents a further step in the process of systemic differentiation of the West Greek dialects.

The next important event is that between 600 and 350 maybe a further differentiation of the Greek and specially West Greek dialects was occurring here and there, caused by the change $dz > z(z)$. Yet, there is no absolutely safe evidence of this assumption, as far as the two time limits are concerned, except in Arcadian, but here and in Cyprian we have decided in favour of a still earlier date. The earliest known instances of the use of ΣZ for Z , or Z for Σ and vice versa in dialects that did not experience the metathesis $dz > z+d$ come namely from the 3rd cent. B. C. (Phocian, East Aegean Doric, first of all), and there are many dialects of the same type, in which this phenomenon cannot be demonstrated at all. On the other hand, it can be taken for granted on the basis of the spelling ΣZ that between 600 and 350 B. C. there originated $z(z)$ from $z+d$ (through the medium of $z+\tilde{d}$) in two dialects, in which the metathesis had been accomplished before, the said dialects being Argolic (the first evidence from the 6th cent.) and Attic (in the 4th cent. for the first time). In this way there actually arose in the Arcadian-Argolic-Attic sphere a certain systemic affinity, in so far that for the first time in the history of Greek originated the phonematic contrast between the voiced and voiceless pure sibilants (the hitherto existing Greek z was namely a mere variant of s placed before voiced consonants, compare for instance $\kappa\acute{o}\sigma\mu\omicron\varsigma = [k\acute{o}z\mu\omicron\varsigma]$, $\lambda\acute{\epsilon}\sigma\beta\omicron\varsigma = [l\acute{e}z\beta\omicron\varsigma]$, $\sigma\beta\acute{\epsilon}\nu\nu\mu\iota = [z\beta\acute{e}n\acute{n}\acute{y}\mu\iota]$ or $[z\beta\acute{e}n\acute{n}\acute{u}\mu\iota]$). This development proceeded in detail approximately as follows: first the change $z+d > zz$ resulted in the contrast $ss : zz$, leaving most likely s with its variant z for some time still in isolation in the system. But because zz must have produced probably very soon after the beginning of its existence its own non-geminated z -variant to open words, it doubtlessly began quite early to absorb also

the function of the hitherto existing *z*-variant of the phoneme *s*. The phonological capacity of the phoneme *s* was thus reduced to that of a mere voiceless sibilant, and *zz* was transformed into the phoneme *z(z)* (i. e. a phoneme with two variants, a geminated one in intervocalic positions, and a non-geminated one in the other positions, including the opening of a word); the phonological counterpart of this phoneme was now represented partly by *ss*, and partly by *s*. In this way one new phoneme originated in Argolic and in Attic, because the older *z+d* was polyphonematic. Either of these two dialects disposes now of 17 phonemes. (See Table H.)

The number of these more significant systemic changes may be enlarged: between 600 and 350 there occurred several other changes, which either have a systemic effect but concern only one of the dialects, or else they affect several dialects without, however, changing in any way their consonantal systemic relations. Besides, it will be necessary to deal once more with some above-mentioned dialectical changes that went on asserting themselves also in some other dialects within this period.

The first group comprises for instance the Pamphylian change $n+t > n+d > d$ which very likely gave rise to the new phoneme *d* in this dialect, the Laconian innovation $th > \theta$, whose next stage of development, i. e. its transformation into *s* can hardly be said to have originated before the middle of the 4th cent. B. C., and finally the Central Cretan aspiration of the explosive geminate $tt > tth$, which very likely soon resulted in the transformation of this phoneme into the consonantal group $t+th$, and thus in its loss as an independent phoneme.^{299d}

To the second group of changes belongs the change of the intervocalic secondary $s > h$, or even its subsequent complete liquidation. This change can be demonstrated in Elis, Laconica, Argolis, on Cyprus and in Pamphylia, and partly also in East Aegean Doric, the resulting *h* being, for sure, only an intervocalic variant of *s*. This likely holds good also in Laconian—even if a new *s* should have arisen there from the original *th* before the middle of the 4th cent. B. C. Even in such a case this *s* would have hardly ousted in the intervocalic position the *h*-variant of the older *s* and made it assume the position of an independent phoneme, for this variant was too unstable and of too small significance from the functional point of view to assume this. This view finds support in the fact that this variant started disappearing from the language as early as in the 3rd cent. B. C.

As to the transformation of the secondary intervocalic *s* into *h*, it should also be pointed out that this innovation took place nearly exclusively in the typical spirantization dialects (it is only Cyprian, in which the intervocalic *s* changes into *h* without any safe and positive evidence of spirantization, and among the spirantizing dialects it is only Central Cretan and also Boeotian, in which, on the other hand, the change of the intervocalic *s* into *h* did not take place at all). The possibility is, therefore, not excluded that even the origin of this *h* is in basic relation with the generally increasing tendency towards weaker articulation of the consonants, which may be with greatest probability ascribed just to the spirantizing dialects. At the same time the greater concentration of this change in some places, specially in the south of the Greek speaking world, leave but one plausible explanation, i. e. that the dialects concerned must have been more exposed to foreign influence.

In the third group of changes we just happen to deal with, we may enter the further spread of the spirantization of mediae in some other hitherto by it unaffected dialects, and the problems connected with the further liquidation of both the phoneme *w* and of the opening signal ζ . As far as the spirantization of mediae is concerned, it may be only Attic, in which it asserts itself in this period as a new phenomenon, and this at the earliest in the middle of the fourth century. It is, however, quite possible that at this time, and not before, the beginnings of some locally

^{299d} Cf. also the Thessalian spelling TΘ (see Note 261 b), which is, however, attested only after 350 B. C.

restricted cases of spirantization were accomplished (this holds good specially in reference to Arcadian Phigalia and to some of the Corinthian colonies in the West of Greece).

The phoneme *w*, in addition to those dialects that had lost it at some earlier date, did probably not occur about 350 B. C. even in some of the Doric regions, adjoining Attica, that is to say in Megaris and in Corinth. On the other hand, it is really rather improbable that the same should be the case in some other dialects. This loss of *w* positively did not occur in the spirantizing dialects, for in the latter the position of the phoneme *w*, as we have mentioned above, became considerably stronger after the change $b > \delta$ than it had been before, even though its main contents, so to say, was now the etymological *b*. As to the interesting fact that in some of the spirantizing dialects the phone *w* as the substitute for the etymological *x* can be demonstrated very rarely about 350 B. C. (this concerns mainly Boeotian, Elean, and the Argolic Epidaurus), we may assume that in these dialects *w* of this origin was disappearing so early that the spirantization $b > \delta$ was able to fix it in a very small number of lexical units only. Apart from the spirantizing dialects, the pronunciation of *w* was likely preserved only in Arcadian, Cyprian, North-West dialects, in Tarentum and Heraclea, in Eastern Crete, in Messenian and in Thessalian, i. e. mostly in typical archaic dialects.

As to the problems, associated with the opening signals ς and ρ , the older evidence of psilosis has now been supplemented by the Ionian of the Cyclades and by Euboean. From the geographic arrangement of dialects that were subjected to psilosis at an earlier or a later date we clearly see that the intervocalic change $s > h$ had nothing in common with this phenomenon.

XI. Now we come to the systemic relation, characterizing the Greek dialects about 350 B. C.,³⁰⁰ that is to say at the terminal boundary of our investigation. About the middle of the 4th cent. B. C. the two most antique among the Greek dialects, from the consonantal system point of view, were the dialects with the geminated liquids and nasals—even though the same had been depalatalized long ago—, i. e. Thessalian and Lesbian. Systemically considered, the significant archaizing character of this gemination cannot be pushed to the background even by the very advanced Lesbo-Thessalian stage, as far as the substitutes for palatalized explosives are concerned. This part of the proto-Greek consonantal system was at that time everywhere in a state of considerable disintegration, anyway, and hardly could be ascribed in Thessalian and Lesbian the character of a decisive classification factor from the systemic point of view. After all, the occurrence of the geminated *rr*, *ll*, *mm*, *nn* is also proved to have been a most characteristic systemic feature in Thessalian and Lesbian by the repeated origination of new liquid and nasal geminates in both these dialects even subsequent to the period of the depalatalization of consonants; cf. e. g. the Thessalian $\acute{\alpha}\rho\lambda\acute{\upsilon}\rho\rho\alpha\iota$ (gen. of $\acute{\alpha}\rho\lambda\upsilon\rho\rho\alpha\upsilon$ = the Attic $\acute{\alpha}\rho\lambda\acute{\upsilon}\rho\iota\omicron\nu$; III) or the Lesbian $\Pi\epsilon\rho\rho\acute{\alpha}\mu\omega$ (Alc.) = the Attic $\Pi\epsilon\rho\acute{\alpha}\mu\omega$. Otherwise, however, i. e. as far as the remaining parts of the Thessalian and Lesbian consonantal system are concerned, it was specially the Lesbian system, which about 350 B. C. was equal to the Ionic system of consonants.

The Thessalian consonantal system was in comparison with the Lesbian one somewhat more archaic. It comprised namely the phoneme *w* still about 350, and besides it had preserved, in contrast to Lesbian, the couple of initial signals $\varsigma : \rho$, these being, however, no independent phonemes. As an archaic feature may be classified also an extra strong tendency to gemination in Thessalian, probably still stronger than that in Lesbian.⁽²³⁷⁾ The isolated Thessalian *tt* and *tth* (or perhaps *t+th*) demonstrated specially in ethnical names, we do not propose to take into account, as its occurrence is lexically limited.

More than a purely lexical significance must be, however, attributed to *tt* and *d(d)* in Thessalio-tis. In the consonantal system of this Thessalian sub-dialect there existed about 350 B. C. only one phone of sibilant character, i. e. *s*, while for older affricates *ts* and *dz* this dialect employed

³⁰⁰ See Table on pp. 194sq.

(in accord with Boeotian) the above-mentioned couple of explosive dental geminates. Otherwise, however, we can demonstrate in Thessaliotis quite regularly the Thessalian gemination of liquids and nasals, while, on the other hand, no trace can be found here of the early Boeotian spirantization of mediae, so that in essential matters the consonantal system of Thessaliotis betrayed, upon the whole, more Thessalian than Boeotian features. The number of its consonantal phonemes reached a record among all the Greek dialects of the Classical Era, its figure being 21.

Less conservative than Thessalian and Lesbian must be considered that group of the Greek dialects formed from among the Risch's South Greek dialects by Arcadian, Cyprian, and Ionic, and as far as the West Greek dialects are concerned by the so-called North-West dialects (Elean excluded), by Corinthian, Megarian, East Aegean Doric, and some minor dialects. This group differs from Lesbian and Thessalian mainly in that it has in its partial system of liquids and nasals one geminate only, namely *ll* (in Cyprian even this one is missing), whereas from the spirantizing Greek dialects (see p. 178) it differs with its absence of safely established documents of early spirantization of mediae. Within this group it is possible to distinguish several partial sub-groups.

A comparatively uniform and on the average rather conservative impression is made on the observer by the West Greek dialects of this particular type. Each of them has two substitutes for the proto-Greek palatalized dentals and velars (beside the pure sibilant *ss*, provided, of course, that we can transcribe in this way the sign $\Sigma\Sigma$, we find here also the affricate *dz*), and they differ from one another only in the number of substitutes for the proto-Greek semivocalic or maybe spirantic phonemes. The most archaic from the systemic point of view were among them firstly all the non-Elean North-West dialects. These dialects differed from most of the remaining non-spirantizing West Greek dialects only in having in their consonantal system the phoneme *w* still quite safely preserved about the middle of the 4th century. The same number of phonemes, however, can be found also in the dialect of Tarentum and Heraclea (i. e. in a way a certain archaic form of Laconian), and further probably also in Messenian and East Cretan. On the other hand, some dialects were most probably short of the phoneme *w* as early as 350 B. C.; these were Megarian and Corinthian, while with entire certainty the same can be stated about East Aegean Doric. As to the Corinthian spirantization of mediae, we have already mentioned that these were mostly cases of local character, typical chiefly in reference to the Corinthian colonies adjoining the Ionic and the Adriatic Seas. Also the occurrence of the sign *Z* for *Δ* in Rhodian Camirus was very likely of a similar local character. (Besides, Thera and Anaphe have each a document, demonstrating the weakening change of the intervocalic secondary *s* into *h*. This change has, of course, no phonematic import.)

Perhaps even more conservative than the systemic type of the non-spirantizing West Greek dialects was the Arcadian-Cyprian type, and chiefly its Arcadian component. This statement would be all the more justified if we assumed that as late as in the 4th cent. B. C. there still was preserved in Arcado-Cyprian a special couple of affricate phonemes, performing the function of substitutes for the original labiovelars preceding e-phones and partly also i-phones. The archaic character of both these dialects is underlined also by the fact that even at this time we hardly can take here the complete loss of *w* for granted. Cyprian, of course, appears to be more advanced than Arcadian, since we cannot demonstrate in its consonantal system any geminate whatsoever as an independent phoneme, the "epenthesis" having taken place here even when the proto-Greek *ll'* was liquidated. Of the phonetically more important non-systemic changes in Cyprian we should point out the fact that even in this Greek dialect the intervocalic *s* changed into the combinatory variant *h* prior to 350 and that psilosis was accomplished in it long before that date. As far as indications of the Arcadian spirantization of mediae are concerned, we have already pointed out that even this phenomenon was very likely locally restricted.

To be sure, there exists also the possibility that it was before 350 already that both of the

Arcadian-Cyprian affricate substitutes for the before-mentioned type of labiovelars fused with the non-affricate sibilants. If this were the case, even Arcadian itself would lose from the systemic point of view much of its presupposed archaic character, and with its $z(z)$ in place of the older dz it would be, in fact, a more advanced dialect than, let us say, the contemporary North-West dialects. As a matter of fact, Cyprian would in such case figure as one of the most progressive dialects of the type we are now alluding to. This possibility is not altogether excluded, for if we take into account the comparatively small functional load of the Indo-European labiovelars, we are not sure whether their Arcadian-Cyprian affricate substitutes preserved their original independent phonematic value as late as to the middle of the 4th cent. B. C. Thus the total number of consonantal phonemes in Arcadian or in Cyprian would in the latter case amount to 18 and to 17 phonemes respectively.

Among the dialects of the second type, as very progressive from the consonantal systemic point of view must be pointed out also the Ionic dialects in the narrow sense of the word, i. e. Ionic in Asia Minor, in the Cyclades, and in Euboea. Just like Lesbian and Thessalian also these dialects disposed of only one monophonematic substitute for the proto-Greek palatalized explosives, namely of either ss or tt . And like Lesbian this Ionic lost of the set of proto-Greek semi-vowels or spirants not only j but also w , and sooner or later accomplished psilosis everywhere. The only systemic difference between these three Ionic dialects consists in the fact that in Euboean the voiced product of the second assibilation is tt , whereas in the Cyclades and in Asia Minor it is ss . Whether some Ionic communities in Asia Minor still preserved about 350 B. C. the older ts —which actually could be postulated for the 6th and 5th centuries B. C. from the special sign T , sporadically occurring in Asia Minor—is, of course, rather doubtful.

Finally, it was also Attic that likely belonged shortly before 350 B. C. to this Ionic type, that is if we take into account its consonantal system before the commencement of spirantization of mediae. Prior to this spirantization and, of course, also to the change of $z+d$ into the monophonematic $z(z)$ the Attic consonantal system with its tt was namely quite identical with the Euboean system (we are right when saying so even if Euboean had at that time already accomplished psilosis, as the loss of ς could not be ascribed a system affecting importance).

The third type of dialects, the spirantizing one, comprises Argolic, Attic, Pamphylian, Elean, Laconian (the dialect of Tarentum and Heraclea excepting), Boeotian, and Central and perhaps even Western Cretan, their characteristic feature being either an early or at least the classical (in the case of Attic) spirantization of mediae.

The first subdivision of the spirantizing dialects is formed by Argolic and Attic, which, as has been pointed out before, are rather closely linked with the above-discussed 2nd main type of the Greek dialects. Putting the question of spirantization of mediae aside, we see that from the historical point of view we encounter in both these dialects (as to Attic, it is, of course, even genetically to be understood) a consonantal system of quite evidently "Ionic" character: both in Argolic and Attic the substitute for the proto-Greek voiced palatalized dentals and velars ceased soon to be an independent phoneme after the metathesis $dz > z+d$ had been accomplished. On the other hand, from the purely synchronic point of view — about 350 B. C. would have to be considered — we rather meet with a certain spirantizing analogy of the then existing systemic Arcadian-Cyprian type, that is to say, as far as the latter had already got rid of affricate substitutes for labiovelars. There can namely be little doubt that both Argolic and Attic had by that time transformed the polyphonematic $z+d$ into the new phoneme $z(z)$, which was phonetically and phonologically alike equal to the Arcadian $z(z)$ arisen directly from dz . As for Argolic and Attic alone, their only systemic difference consisted in the fact that Attic used for the polymorphematic $t(h)j$ and for every $k(h)j$ and tw the explosive tt , while Argolic employed for any proto-Greek voiceless palatalized dental and velar the sibilant ss . (The subdialectical Argolic difference existing between the valley of the river Inachus (Argos, Mycenae, Heraeum) and the East of

Argolis (Epidaurus, Methana, Troezen) and consisting in the change of the secondary intervocalic *s* into *h*, must again be looked upon as a non-systemic phenomenon.)

In all the other spirantizing dialects there are no satisfactory proofs of the metathesis $dz > z+d$ having taken place in them. But only in one of them — Pamphylian — the older *dz* got fully preserved, resisting definitely the tendency to be transformed into the explosive *d(d)*. In this respect the Pamphylian dialect seems to be rather conservative, when compared to the other spirantizing dialects, this feature being even underlined by the preservation in Pamphylia of the parallel pronunciation *ts* down to the 4th cent. B. C. In sharp contrast to it, however, the origin of the new explosive *d* from *n+t* through *n+d* would make of this dialect an extra progressive unit, being in this respect ahead even of Modern Greek. From among the non-systemic changes the origin of the combinatory variant *h* used for the secondary intervocalic *s* should be pointed out. — As to the possibility of there existing more labial spirants in Pamphylian, this hypothesis being based on the fact that several letters (*Ϝ*, *Ϟ*, *Β*) were employed for the etymological *Ϸ*, this situation hardly appears creditable about 350 B. C. The letters *Ϝ* and *Ϟ* were namely used for the etymological *Ϸ* indiscriminately, while the employment of the sign *Ϟ* in u-diphthongs alongside with *Υ* and also in the function of a transition sign (cf. *ῘπελαϞουϞις*; II) seems to point in all probability only to some archaic phonetic difference, the character of which need not have been that of two independent phonemes; thus for instance sign *Ϟ* may originally have represented a special graphic reproduction of the semivocalic combinatory variant of the vowel *u*.

In the remaining four spirantizing dialects, on the other hand, *dz* gave rise to the dental geminate *d(d)*. At the same time in two of them, i. e. in Laconian and Elean, its etymological voiceless counterpart possessed the sibilant form *ss*. As we have already mentioned on page 174, this anomaly very likely resulted from the fact that these dialects obviously accomplished the innovation *ts > ss* before spirantization of mediae. A typical feature of both these dialects is also the non-systemic transformation of the intervocalic *s* into its combinatory variant *h*. — As to Laconian and Elean alone, there exists only one systemic difference between them: the resulting product of the spirantization of *th* had in Laconian about 350 B. C. most likely still the phonetic value *θ*, and not yet that of *s*. The Elean psilosis, on the contrary, which forms a contrast to the Laconian preservation of both the initial *Ϝ* and *Ϟ*, has no systemic importance.

And finally there are the last two spirantizing dialects, Central (and perhaps also Western)^{300a} Cretan and Boeotian, both of them forming a complete couple of dental geminated explosives, i. e. *tt* and *d(d)*. Rather striking is the circumstance that in this case a systemic affinity linked two dialects that were geographically, and probably even genetically, quite remote, the origination of these geminates taking place at considerably different times and obviously brought about by different phonetic impulses, on the top of it.

The Central Cretan consonantal system represents from the historical point of view an analogy to the Laconian and Elean system, the only difference being that the change *ts > ss* did not penetrate into Central Crete sufficiently early to prevent *ts* from actually changing into the parallel explosive geminate *tt* under the influence of *d(d)*, the latter having originated from *dz* after the spirantization of *d* in *d̄*. On the contrary, in Boeotian it is improbable — in spite of considerable antiquity of Hesiodos's form *μῆλ'ε'* — that the changes $dz > d(d)$ and $ts > tt$ might be chronologically associated with the local spirantization of mediae. — The temporary systemic equality of Central Cretan and Boeotian in the sphere of consonants was, of course, disturbed prior to 350 B. C. by the occurrence in Central Crete of the aspiration of the geminated *tt* in *thh*, which got

^{300a} An analysis of West Cretan is not attempted here as there is not enough extant material that would enable to present it. But cf. Note 318, as well as Tables G and H on pp. 191 and 193, and Table on p. 195.

transformed likely pretty soon into the polyphonematic consonantal group *t+th*. Besides, Central Crete differs from Boeotia also by having accomplished psilosis.

XII. The above analysis of the consonantal systems in the single Greek dialects with view of presenting their features about 350 B. C. makes it rather clear to what extent the more ancient "genetic" links had been disturbed by that time.

East Greek, when reviewed in the light of the consonantal systemic relations between the chief genetical groups of Greek dialects, i. e. East Greek, West Greek, and the Aeolic dialects, appears to be in the most advanced state of disintegration. Among the five basic dialects of the East Greek group (Attic, Ionic, Arcadian, Cyprian, Pamphylian) we do not find in the middle of the 4th cent. B. C. a single couple with the same consonantal system. Yes, even those dialects that were genetically very closely connected differed from each other very distinctly in this respect, e. g. Attic and the Ionic of Asia Minor.

Upon the whole, all the East Greek dialects were about 350 B. C. comparatively progressive, as far as their consonantal systems are concerned, but as these dialects had for the most part very rich and often widely differing innovation history behind them by that time, it is really difficult to say which of them was the most progressive. This may be attempted with some hope of success only within the sub-groups. Thus the Attic consonantal system, let us say, makes the impression of being more progressive than the Ionic system of Asia Minor, whereas Arcadian with its preserved *ll* appears to be somewhat more antique than Cyprian. On the other hand, it would be hard to compare with respect to progressiveness for example the consonantal systems of Attic, Cyprian, and Pamphylian. Yet, the most progressive of the three would appear to be Attic, while Pamphylian, in spite of its accomplished spirantization and the probable origination of the new explosive *d*, had in its consonantal system also some archaic features (especially the preserved *ts*, *dz*, *w*). As to Cyprian, it no doubt disposed by that time already of *ss*, *z(z)*, — being without *ll*, in addition to it —, but it had not accomplished spirantization of mediae, and maybe it still had about 350 B. C. special affricate substitutes for labiovelars before e-phones and partly even i-phones.

The cause of this high-grade systemic differentiation within the East Greek group of dialects probably was the fact that its single members found themselves comparatively very early in considerable isolation. The explanation of the progressive character of the Attic consonantal system is the central position of this dialect, implying the possibility to absorb influences from many different sides and quarters, while the mixture of the archaic and innovation elements in Pamphylia and in Cyprus was determined by the archaizing tendencies of dialects isolated in foreign environment plus the linguistic influences of the non-Greek population.

The second large genetic group of Greek dialects, West Greek, had not reached such high degree of differentiation by 350 B. C. as East Greek. It namely happens quite often that we find two or more West Greek dialects differing from each other, as to their consonantal system, either not at all or very little. Cf. e. g. the very archaic consonantal system in the North-West dialects, in East Cretan, Messenian, and in the Laconian dialect of Tarentum and Heraclea, or else the comparatively antique system of consonants from Megaris, Corinth, and East Aegean Doric, or, let us say, the innovation consonantal system in Laconian and Elean; worth noting is the fact that we encounter here side by side even those dialects that in the historical era were not spoken in adjoining territories.

To be sure, as to progressiveness, there exist considerable differences among the members of this group, too. Nevertheless, they are not so varied as in East Greek, and they appear, so to say, to be arranged in a line, i. e. we find each succeeding sub-group usually only somewhat altering the system of its respective preceding sub-group. The sequence from the most antique to the most progressive would be the following: a) the North-West dialects, East Cretan, and the dialect of Tarentum and Heraclea, b) East Aegean Doric with Megarian and Corinthian (without *w*), c) the "spirantizing" Elean (including the geminate *d(d)*), and d) two offshoots of Elean type: Laconian

(with the additional change $th > \theta$) and Central Cretan (with the geminate tt and its aspiratio into $t+th$). The only dialect falling out of this line is Argolic. Its consonantal system is quite progressive (spirantization of mediae, total liquidation of affricate phonemes), but this progressiveness displays an East Greek feature.

The comparative invariability in the West Greek consonantal systems is, of course, in full accord with the circumstance that the West Greek dialects had most likely not yet been greatly differentiated at the time of the so-called Doric migration, and that their rather continuous geographic distribution — as it existed at the end of this period — underwent hardly any greater changes even subsequent to this migration. This forms a sharp contrast to the conditions prevailing in East Greek, whose geographical integrity was very strongly upset just by this Doric migration. The progressive character of some West Greek dialects, consisting mainly in spirantization of mediae and some changes associated with it, is a comparatively late phenomenon, very likely determined by the mostly peripheral position of these dialects and at the same time by their reduced capacity to resist foreign influences.

Finally we have the group of Aeolic dialects. Although it comprises only a few dialects, it serves as an extra good demonstration of two things, partly how far the old genetic relations could disintegrate, and partly that archaic systemic features could be preserved even in dialects which were separated from one another for a long time. The latter case concerns Thessalian (Thessaliotis to some extent excepting) and Lesbian, for in the consonantal systems of these two dialects there is almost no difference, although these dialects separated from each other in a radical way already at the time when West Greek, e. g., was not yet systemically differentiated. The opposite example of older relations being overlaid with later ones is the case of Boeotian, a dialect displaying typical innovation tendencies throughout its whole history. At the same time, however, it would be wrong to ascribe this Boeotian innovation character onesidedly to some direct influence exercised on this dialect by West Greek. The most specific features of the Boeotian consonantal system, the geminated explosives tt and $d(d)$, are certainly not phenomena of West Greek origin, but most likely a secondary, typically local product of the overlaying of the Aeolic foundation of the prospective classical dialect of Boeotia with the dialect of the West Greek invaders known as “Boeotians” (and “Thessalians”; this second reference to the West Greek “Thessalians” holds good, to be sure, especially for Thessaliotis with its own sub-dialect, whose system is rather strongly affiliated to Boeotian). The progressiveness of the Boeotian and Thessaliotic consonantal systems is, therefore, likely connected with these special conditions prevailing in prehistorical Boeotia and in part of Thessaly, whereas the antiquity of the consonantal systems in the rest of Thessaly and in Lesbos was determined (specially that of Thessaly) by the comparative isolation of these regions from the rest of the Greek world.

Thus the investigation of Greek dialects we have undertaken in this work has led to several interesting, yes even surprising, results, pointing to new possibilities in the classification of the Greek dialectical world. It is, however, necessary to stress that we have followed just one aspect of the problem, not being able to deal with the whole range of these phenomena. We have done so on purpose, believing that the complex classification analysis of all Greek dialects — which, after all, has not yet been systematically attempted — can only result from detailed analyses of single aspects of this set of problems. And because no systematic attention has been paid so far to the differentiation development of phonic systems in the single Greek dialects, the aim we followed in this work was to delineate the development of the system of consonants. To a certain extent such restricting of the investigation means a disadvantage, the investigator running the risk of distorting the actual relations between the dialects if he is not careful enough. Let us mention at least one example. From our discussion the reader could gather — if we failed to stress the partial character of our investigation — that e. g. the dialectical difference between Attic and Ionic was in general greater than, let us say, between Central Cretan and Boeotian.

That is why results of our investigation must be looked upon as provisional statements whose definite formulation will have to wait for their confrontation partly with the investigation of the vocalic system and partly with the results of analyses of non-systemic phonetic peculiarities as well as of morphological, syntactical and lexical analyses. But the narrowing of our field of investigation had also its advantages. We were able to study the phenomena as such on the whole without prejudices. If we had namely been continually confronting the results of our partial analyses with the other facts referring to the relations among the Greek dialects and known from elsewhere, all these associations might have induced us to give our observations wrong interpretation now and then.

We are, of course, fully aware that neither our onesided attempt at classification of the complex relations among Greek dialects is void of defects. We have already alluded to a certain inevitable degree of schematizing, neither is it probable that all our attempts at interpreting concrete phonetic phenomena — especially those concerning spirantization of mediae — will meet with general approval. But come what may, even if many a conclusion drawn in this work should require revision before it is possible to reconstruct from similar partial studies the complete picture of linguistic conditions in the world of ancient Greek dialects, we sincerely hope that some of the views expressed in this work will contribute — whether positively or negatively — towards quicker successful realization of these efforts.

Translated by *S. Kostomlatský*