

## PRONUNCIATION

## OF

## ANCIENT GREEK

TRANSLATED FROM THE THIRD GERMAN EDITION OF DR BLASS

WITH THE AUTHOR'S SANCTION

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pembroke college.


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## PREFACE.

THE present translation of Dr Blass' work on ancient Greek pronunciation represents the third and latest German edition, and the translator has throughout its production had the advantage of the advice and help of the author, who kindly undertook to read all the proof-sheets.

A few words are necessary touching the system of transliteration adopted by the translator. As regards the consonants little difficulty presented itself. He was able here simply to adopt the transliteration used by the author, only making the necessary changes of $y$ for $j$, ch for $t s c h, j$ for $d z h$, and so on, according to the different values of the letters in German and English. With regard to the vowel sounds however his course was not so plain. As, in spite of the labours of Mr Sweet and Mr Ellis, no artificial system of phonetic representation has obtained sufficient acceptance to be really familiar to English scholars, he has resolved to retain the vowels with what may roughly be called their continental values. The alternative plan, namely to represent them by their approximate English equivalents, presented great difficulties. To take an instance: to represent the continental long $i$ sound by $e e$, not to speak of its cumbrousness, labours under the additional disadvantage that the short sound must still be represented by $i$, thus obscuring the identity of the two sounds.

Again Dr Blass has in the case of the $e$ and $o$ sounds adopted diacritic marks to distinguish the open and closed sounds, and it therefore seemed especially desirable here to
retain simple symbols. In all cases therefore where the Greek vowels are represented by Roman letters, these must be understood to have their continental sound, that is to say roughly speaking:-
$\bar{a}$ must be pronounced as in father.

| $\check{t}$ | $"$ | as in man. |
| :--- | :--- | :--- |
| $\bar{\zeta}$ | as in second syllable of quinine. |  |
| $\bar{y}$ | as in first syllable of quinine. |  |
| $\bar{e}$ | as in fête ${ }^{*}$. |  |
| $\check{e}$ | as in ebb. |  |
| $\bar{o}$ | as in note. |  |
| $\check{o}$ | as in not. |  |
| $\bar{u}$ |  | as in lute. |
| $\bar{u}$ | as in put. |  |

The translator has already mentioned his indebtedness to the author for his kindness in reading the proof-sheets; he has also to express his gratitude to Mr R. A. Neil, Fellow of Pembroke College, for similar help.

* It ought to be remarked that these two sounds in English contain a diphthongic element which phoneticians call a glide-in the case of $\bar{e}$ an $i$-glide, in the case of $\overline{\dot{\sigma}}$ a $u$-glide-which gives them a decidedly different sound to that heard on the Continent. The nature of this difference may be suggested by saying that in the case of $\bar{\sigma}$ the continental sound often tends in the direction of our $a w$ in save etc.

June, 1890.

## ADDITIONS AND CORRECTIONS.

P. 37, note 5. $\delta \iota \nu a ́ p \iota a$ for $\Delta \iota \nu a \rho \iota a$.
 of sentence "in which cases even inscriptions shew $\epsilon \iota$ and the grammarians designate $\eta c$ as old Attic."
P. 52 (text) I. 12, $\dot{\epsilon} \pi \iota \tau \eta \dot{\eta} \delta \epsilon o s$ for first $\dot{\epsilon} \pi \iota \tau \eta \dot{\eta} \delta \epsilon \circ$ s.
P. 72 (text) l. 7, v for o.
P. 77 (text) l. 14, a-no-si-ya for a-no-si-ja.
P. 118 (text) l. 23 after Auramazda add Ma乡aios, Má̧́кךs, Mazdai, Mazdak.

## The theoretical and practical sides of the subject.

The investigation of the pronunciation of Ancient Greek may be considered from the point of view of theory and again from that of practice. In the former case its object is the phonetic value, which the Greek letters and combinations of letters had in the living ancient speech; in the latter the point under discussion is, what phonetic value are we to give to those letters and combinations in reading and teaching Ancient Greek? The answer to the question of theory will influence the answer to the question of practice; not however exclusively, for in the case of the latter appropriateness and feasibility must be taken into consideration. I intend in the present work to enter but little into the practical question. For the Germans are not in need of reform either in the case of Greek or in that of Latin in the same degree as the English, and even if they were, the welfare of Greek and Latin instruction does not depend on the abolition of this misusage and this only. Our object is contact with the spirit of classical antiquity; but for the purpose of such a contact it is by no means a hindrance to me, if I say something like Tsītsěrō, while the actual man called himself $K \grave{\imath} k \check{e} r \bar{o}$. And there is according to my conviction nothing in our pronunciation of Greek so positively and stupidly wrong as the ordinary pronunciation of Latin $c$. If however anyone feels himself bound in the interest of what we may call a more workmanlike prosecution of classical studies to pay scrupulous regard to such things, and can in so doing guard against the reproach of straining at gnats and swallowing
P.
camels，for such a man I have of course nothing but praise． But the attempts，constantly repeated here as well as in other countries，to introduce in practice the modern Greek pronuncia－ tion for ancient Greek，must be withstood in view of not only practical but also theoretical and scientific interests．For even the champions of the modern Greek pronunciation appeal not to a practical superiority，which it obviously docs not possess， but to a supposed scientific accuracy．A short history of the whole contest from the beginning of Greek studies in the West may conveniently be introduced here．

## SEction 2.

## History of the contest about the pronunciation of Ancient Greek．

The knowledge and study of ancient Greek came to the countries of the West towards the close of the Middle Ages through the medium of Byzantine scholars，who naturally brought with them and introduced their own pronunciation， that is to say that current among the Greeks of their day．

As however these studies were prosecuted more indepen－ dently and thoroughly in the countries of the West，there arose against the traditional pronunciation a reaction which started with some support in the fact，that quite a different pro－ nunciation was customary in the case of the sprinkling of Greck words in Latin，such as ecclesia，ethice，alphabetum．Moreover the Byzantine pronunciation deviated so widely from the writing and confused so many sounds，that it of necessity not only appeared unpractical but also called forth doubts as to its originality．Finally，many passages in ancient authors spoke so plainly for a different ulterior pronunciation，that the fact of an alteration having taken place could not by any possibility escape classical scholars．Accordingly so early as Aldus Manutius we have his little $\pi a ́ \rho \epsilon \rho \gamma o \nu^{1}$ ，which has appeared in many forms in

[^0]print, relating to the diphthongs, $\eta$ and $v$, and some consonants. A short treatise on the pronunciation of all the letters was furnished by Jacobus Ceratinus ${ }^{1}$, professor at Louvain, who died in 1530. But the most celebrated of these early combatants was the renowned Desiderius Erasmus, in a dialogue de recta Latini Graecique sermonis pronunciatione ${ }^{2}$, which appeared first at Basel in 1528. Although the author was pleased to clothe his subject in the facetious, or more correctly the rather insipid, dress of a dialogue between a lion and a bear, nevertheless his treatment is so thorough and comprehensive, that there can be no doubt whatever of his scientific seriousness. The fact is not altered by our knowledge that Erasmus himself continued to use the traditional pronunciation ${ }^{3}$ : a reformer he certainly was not. A greater stir was made by some English scholars at Cambridge, John Cheke and Thomas Smith, moving the condign wrath of Stephen Gardiner, bishop of Winchester, at that time Chancellor of the University, whom we know in Church History also as a fierce persecutor of heretics. In 1542 he issued an edict for his University, in which e.g. it was categorically forbidden to distinguish $a \iota$ from $\epsilon, \epsilon \iota$ and $o \iota$ from $\iota$ in pronunciation, under penalty of expulsion from the Senate, exclusion from the attainment of a degree, rustication for students, and domestic chastisement for boys. Cheke's correspondence with the Bishop on pronunciation appeared at Basel
òкт $\dot{\omega} \tau 0 \hat{u} \lambda b$ you $\mu \epsilon \rho \hat{\omega} \nu$ by Const. Lascaris (as R. Meister shews, z. griech. Dialektologie, Progr. Nikolaigymn. Leipzig, 1883, p. 13), then repeated in the Cologne pirated reprint of the Erasmian Dialogue (1529), also in the Orthographiae ratio Aldi (published by his grandson, 1566).
${ }^{1}$ His proper name was Teyng, born at Hoorn in Holland, died 1530. The treatise was printed at Antwerp 1527 (vid. E. Lohmeyer, Phon. Stud. 1. 183), reprinted in the abovementioned Cologne piracy of Erasmus, also in Sylloge scriptorum, qui de linguae Graecae vera et recta pronunci-
atione commentarios reliquerunt, ed. Sigeb. Havercampus, Lugd. Bat. 1736, p. 355-376. Title, de sono litterarum, praesertim Graecarum. It is dedicated to Erasmus, but does not make the smallest reference to his labours on this subject, so that the priority is evident.
${ }^{2}$ Reprinted 1530, pirated 1529 at Cologne (vid. supra); see further in Havercamp's Sylloge altera scriptorum qui, etc. (Lugd. Bat. 1740), p. 1-180.
${ }^{3}$ S. Vossius, Aristarch. i. c. 28 (Opp. vol. iI. p. 36) ; Ellissen, Göttinger Philologenversammlung (1853), p. 108 ff.
in 1555, published by Coelius Secundus Curio ${ }^{1}$; the Bishop uses for the most part the weapon of authority, Cheke on the other hand that of respectable learning and intelligent critical discussion. He was seconded by his friend Thomas Smith, whose missive to the Bishop is dated in the year of the edict ${ }^{2}$. At this point the movement began also among the French scholars, among whom Petrus Ramus and Dionysius Lambinus ${ }^{3}$ must be mentioned as the first combatants. Before the century had closed, the victory of the Erasmians was decided in all the chief centres of classical philology. A pretty thorough exposition was written by the well-known reformer Theodor Beza, de germana pronunciatione Graecae linguae ${ }^{4}$. He as well as Cheke was made use of in a somewhat questionable manner by the Dutchman Adolph van Metkerke (Mekerchus) in his work de linguae graecae veteri pronuntiatione ${ }^{5}$, Bruges 1565, the most complete confirmation of the Erasmian system that had been written. Finally in 1578 the famous Henr. Stephanus entered the lists in the same cause, Apologeticus pro veteri ac germana linguae Graecae pronuntiatione ${ }^{6}$. Stephanus is already able to say, that in France, England, the Netherlands and elsewhere the reformed pronunciation was eagerly learnt and practised. In this there is nothing to cause surprise; for not only had the Erasmians, on the whole, the better cause, but the opposite party were very weakly represented. Joh. Reuchlin, from whom the pronunciation of the latter takes its name in Germany, gave the impulse to it only in so far as he was the founder of Greek studies in that country; for although he used and taught the modern Greek pronunciation, he could have no object in establishing and defending it, inasmuch as he never lived to see Erasmus' treatise. Bishop Gardiner cannot be reckoned a scientific combatant; and the short treatise directed

[^1]contest on pronunciation is learnt from $H$. Stephanus in the work to be cited below (p. 391 f.).
${ }^{4}$ Printed in Hav.'s first Sylloge, p. 305-352, appeared (acc. to Ellissen) 1554.
${ }^{5}$ Hav. p. 1-170.
${ }^{6}$ Id. p. 377-476.
against Mekerchus by the Englishman Gregory Martin ${ }^{1}$ (died 1582) was of trifling importance. Accordingly the Erasmian pronunciation prevailed throughout the West, and the counter-efforts of Erasmus Schmidt of Wittenberg ( 1560 $1637^{2}$ ) and of Joh. Rud. Wetstein of Basel (end of the 17th century ${ }^{3}$ ) failed to make any alteration in this result. There was now a lull in the contest, and the interest in the question waned, until the revival of grammatical studies in our century gave it new life. All our great grammarians have entered the arena either entirely or essentially on the side of the Erasmian pronunciation, e. g. G. Hermann, August Matthiae, Phil. Buttmann, R. Kühner, K. W. Krüger, G. Curtius ${ }^{4}$. Seyffarth and Liscovius, who published special works on the subject in 1824 and 1825 respectively ${ }^{5}$, affect an independent attitude towards both schools, and arrive at mixed results. About the same time the Dane S. N. J. Bloch ${ }^{6}$, who was refuted by his countryman R. T. F. Henrichsen in a justly valued book, was a zealous champion of the modern Greek pronunciation. The matter was next treated of in the Göttingen and in the Frankfort Philologenversammlung in the years 1852 and 1861, Ellissen supporting the modern Greek pronunciation and Bursian a mixture ${ }^{7}$.

The hottest and most persistent combatants are the Greeks
${ }^{1}$ In the Syll. altera p. 575-622.
${ }^{2}$ Id. p. 631-674.
${ }^{3}$ Joh. Rod. Wetstenii pro graeca et genuina linguae Graecae pronunciatione orationes apologeticae, editio ir.Basileae 1686.
${ }^{4}$ G. Curtius, Erläuter. p. 15 ff., and more thoroughly Ztschr. f. d. österr. Gymn. 1852, p. 1 ff.
${ }^{5}$ Seyffarth, de sonis litterarum gr. tum genuinis tum adoptivis, Leipz. 1824; Karl Fr. Sal. Liscovius über die dussprache des Griechischen, Leipz. 1825.
${ }^{6}$ S. N. J. Bloch, Revision der Lehre von der Ausspr. des Altgr., Altona and Leipz. 1826; additions in Seebode's Archiv, 1827 and 1829; also three Copenhagen Schul-Programme, 1829-

1831; Zweite Beleuchtung der Matthiae'schen Kritik, die Ausspr. des Altgr. betr., Altona 1832. R. J. F. Henrichsen, über die Neugriechischen oder sogen. Reuchlinische Aussprache d. Hellen. Sprache, übersetzt von P. Friedrichsen, Parchim and Ludwigslust 1839.
${ }^{7}$ Verhandl. der xirr. Vers. deutscher Plilologen, Gött. 1853, p. 106144; id. d. xx. Vers. Leipzig, 1863, p. 183-195. Ellissen's treatise is valuable on account of its thorough treatment both of the history of the Greek nation and the history of the contest over the pronunciation: an index of the literature of the subject is given p . 137 f. note.
themselves, who, now that the German pronunciation has been adopted even in Russia, are in fact the only people who still cherish itacism. Among them however there are not wanting enlightened investigators of language, who do not refuse to take a scientific view even of this subject.

## Section 3.

## Genuine and counterfeit Erasmian principle.

It is however worthy of remark, that the Erasmian pronunciation, in the actual form which it has taken in various countries, is by no means identical with that theoretically developed by Erasmus and his adherents. In reality the axiom which has been more or less followed is this, that the symbols and combinations of symbols are to be pronounced as the corresponding symbols in the various languages; but this is an axiom of convenience not of science. The genuine teaching of the Erasmians is on the contrary really scientific ; they endeavoured, independently of the modern Greek tradition, to recover the ancient pronunciation from direct evidences, from transcripts into and out of foreign languages, and from linguistic precedents. They also, as was right and fair, called in to their help the analogy of modern languages; Erasmus heard the sound of a , i.e. $a+\iota$, in the German Kaiser, that of oı, i.e. $o+\iota$, in the moi toi soi of certain Frenchmen, while Beza expresses the pronunciation of these words by moae toae soae (triphthongal), and recognizes the genuine o $o(o+\imath)$ in soin and besoin. The train of thought then is this, various modes of writing such as $\iota, \eta, v, \epsilon \iota, o \iota, v \iota$ cannot possibly from the beginning have stood for the same sound, but rather, when the writing was diphthongal, the pronunciation also was diphthongal, i.e. the members of the diphthong were pronounced distinctly but united into one syllable, as they are heard in numerous instances in living languages. But finally in practice only so much, as was convenient, was retained from those scholars' scientific discovery, namely the freedom from modern Greck tradition and the employment of West European analogies, the most obvious being
of course unconsciously adopted. Accordingly the Germans pronounce $\zeta$ as $t$ s, oivous like $\epsilon^{i} \nu \quad \nu \quad u$, both syllables of $\epsilon i v a \iota$ with the same vowel sound, and call this the Erasmian pronunciation, although the ancient Erasmians required the pronunciations $d s$ for $\zeta, \epsilon+v$ for $\epsilon v, \epsilon+\iota$ for $\epsilon \iota$.

## Section 4.

## Relation of Sound and Writing.

However, as I have said before, I shall here disregard practice and keep to scientific discovery; for as such, and indeed as a very great discovery, I regard the achievement of Erasmus and his predecessors and followers. The theoretic and scientific significance of these researches can indeed be far more easily undervalued than overvalued. The history of Greek pronunciation is the history of that phonetic change, which took place in the language so to speak covertly, but which is on that account by no means less real and important than the alteration, which became apparent in the writing. It is indeed the case with all languages, that the writing does not keep pace with the changes of sound, but remains more or less in the lurch. Writing is $n{ }^{\text {a }}$-conscious translation of sound into symbols, but, after this has been done once and originally, habit has stepped in, and one race hands on this habit to the other. Hence arises the well-known variation between pronunciation and writing in modern languages, which is nowhere greater than in English. Not that the present English orthography is the same as that under Henry the Eighth : but we should be entirely misled, if we were to estimate the deviation of the language of that period from that of the present day by the deviation in the writing. The matter is well known to and treated of by specialists ${ }^{1}$; that however need not prevent us citing here the results of the abovementioned treatises of Cheke, Smith and others. They transcribe Engl. mane $\mu \hat{a} \nu$, gate $\gamma \hat{a} \tau$; Erasmus ascribes the pro-

[^2]nunciation of $a$ as $a e$ to the Scotch. Further, mean $\mu \eta \nu$, meat $\mu \eta \tau$, heat $\dot{\eta} \tau$, wheat oí $\boldsymbol{\tau}$; the $\eta$ signifies the open sound, the closed sound in me, bee being called e italicum. The Scotch according to Erasmus pronounced this $e$ as $i$. Bì bite, фĩ file, $\beta \grave{\prime}$ ì luy $i t$. $\Gamma \hat{\omega} \nu$ gone, fò ò $\nu$ go on. $\Delta v \kappa \lambda u \tau ~ \rho \in \beta v \kappa$ duke lute rebuke, the long French $u$, which was also attested for rude, rue; the corresponding short sound, says Smith, is heard more frequently in central than in southern England, but would be general in ruddy, bloody (written at that time bludy), muddy. Latin $u$ is heard according to them in bow the verb $\beta o v$, gown yoiv $\nu, f_{\text {oul }}$ фoun ; in bow the substantive, bowl etc., the sound of the Greek $\omega v$ (the modern $o u$ ). For the diphthong $a i$, i.e. $a+i$, way, pay are cited (in these cases however in more cultivated pronunciation more of an $e i$, in Scotch and north English almost a monophthongal ae was heard), for ei neigh, for au claw, for eu few, dew. To sum up, we find, that an extraordinary alteration has taken place in the actual language, quite as great as that established for Greek by the Erasmians. French also of that period was pronounced quite differently to what it is at the present day: mute $e$ had its value, the mute final consonants were perceptibly dwelt upon at all events before a pause; in beau Smith heard the Greek diphthong $\eta \nu$, Erasmus and Stephanus a triphthong, all three vowels being heard. So shifting is pronunciation, and so stable writing, juggling away as it does the most important changes. But the enquirer must not allow himself to be juggled with, not even to the extent of regarding what is apparent as more important owing to its transparency than that which comes to pass covertly.

But if these sound-changes are not apparent, how can we know anything at all about them and about the earlier soundstage of Greek? I might answer at once: in the same way that we do with regard to the earlier sound-stage of English; for Greek too there is a whole series of similar evidences in ancient authors. But Erasmus was perfectly right in inferring a variety of sound from the application of various symbols, and a diphthongal pronunciation from diphthongal writing. The simple and natural rule, write as you spuak, has never from the beginning been infringed without special reason. Such a reason
existed in many instances for the Romance languages in the deference paid to the Latin mother language ; French modes of writing such as corps, doigt, at an earlier period also faict for Ifait and so on, where the penultimate consonant was always mute, could never have existed but for the Latin corpus, digitus, factum ${ }^{1}$. For the ai in aimer,,$f_{\text {aire }}$ etc. Erasmus and Beza attest the living dialectal use of the diphthongal pronunciation in their time; $e u$ is according to them universally a diphthong, $=e+($ Fr. $) u$, in like manner $a u$ ( $=a+o$ according to Beza); eau and oi have been already mentioned, and for the latter the original pronunciation as $o+i$ is guaranteed by the living English voice from voix and choice from choix². Similarly English orthography, disregarding the mixture of different systems of sound-notation, has arrived at its present incongruity with the sound through deference to Latin and the permanence given by writing to sounds formerly-but now no longer-really heard. Since then the ancient Greeks were not in a position to pay deference to a previous language in a higher stage of cultivation, they must consequently have originally striven to bring their writing as near as possible to the sound. As the language underwent further development, it may well have happened both in Attic and in the other dialects that the orthography did not progress evenly; but this must have consisted much more in what was old not being entirely crowded out by what was new, than in the retention of the old to the absolute exclusion of the new. For a crystallization of orthography can only occur where the word forms have stamped themselves firmly
${ }^{1}$ Diez, Gramm. d. roman. Spr. $\mathbf{1}^{3}$, p. 442.
${ }^{2}$ Stephanus, p. 414, ed. Haverc., makes the universal statement as regards the French: " non solum diphthongos et triphthongos, bisque longiores recte pronuntiamus; verum etiam nullamex vocalibus devorantes, indissoluta voce plane distinguimus beau, lieu, ioyaux, ioyeux....Quotum enim quemque Gallorum hodie reperias, qui aequo animo ferat $\mu o \nu o \phi \omega \nu i a \nu$ suarum diphthongorum et triphthongorum? Id est,
si una sola enuncietur, velut quaelibet ex tribus vocalibus?" Modern Provençal still retains diphthongal ai (faire, paire, maire = père, mère), au, eu (Diéu, castèu = château) etc. Cp. Diez, p. 429 ff., who adduces for au from Beza's treatise de francicae linguae recta promuntiatione (1584) a somewhat discrepant testimony to the effect that the pronunciation like ao was Norman, the ordinary pronunciation much like $o$.
by much reading and writing; where there is but little reading and writing, as in Greece in the classical period and in western Europe in the Middle Ages, unless the sound is very stable and well defined, the orthography is extremely shifting. Now it is actually the case that in Attica towards the close of the fifth century the entire system was absolutely changed. Here was the opportunity in those cases, where the living sound had here and there deviated from the writing, to bring them again into harmony. Moreover, since the Athenians and also the other races did not yet possess any grammarians or etymologists to attach importance to a historical mode of writing, the only principle which could have weight was the phonetic. Accordingly it is actually the case that on Attic inscriptions of the fourth century the orthography is by no means established in all points: $\tau \epsilon \hat{\imath} \tau \iota \mu \epsilon \hat{\imath}$ and $\tau \hat{\eta} \iota \tau \iota \mu \hat{\eta} \iota$ are written promiscuously. When in the course of time the Attic dialect extended itself beyond the boundaries of Attica, and became essentially the standard for the $\kappa o \iota \nu \eta$ of Hellenized countries, and at the same time habits of composition and literary culture increased to an extraordinary degree, fluctuation in orthography must most certainly have become far less easy. To the Macedonians, the Egyptians, the Carians and Lydians, and also the Dorians of the Peloponnese, Attic Greek was an acquired tongue, and that in part by means of its literature, so that sound and writing impressed themselves simultaneously. We soon have to add to this the influence of the learned grammarians. However even at that period the orthography did not yet crystallize : the $\iota$ of the diphthongs $\underset{\imath}{\boldsymbol{a}, \eta, \boldsymbol{\varphi}, \text { which had }}$ gradually disappeared in the spoken language, was in the time of Augustus consciously omitted by many in writing also, as
 $\stackrel{\prime}{\epsilon} \chi \circ \nu$. In like manner, after $\epsilon \iota$ had become attenuated to a long $\iota$, although it was not given up in writing, it was applied to a new purpose, namely the regular notation of long $\iota^{2}$.

[^3]
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tradition. For when, to take an example, Bursian appeals to the fundamental axiom of philological criticism, that tradition is to be regarded as correct, until its incorrectness can be demonstrated, he forgets that we have here two traditions, and that it is a not less recognized principle to prefer the older and the literary to the later and oral ${ }^{1}$. The present sound in any language proves nothing for the earlier, although the mode of writing it may have remained the same; this testimony requires in each single case further confirmation, before it can be admitted with any certainty. And if there is an absolute incongruity of sound and writing, this forms the strongest presumption against the so-called testimony. Modern Spanish has or had a short time ago three notations for the guttural ch, $g$ (before $e$ and $i$ ), $j$ and $x$. This is an incongruity, in so far as the sound is everywhere similar, the writing dissimilar. The writing of $g$ side by side with $j$ is easily explainable by the deference paid to Latin; that of $x$ is stranger: why relox 'horologium,' baxo Fr. 'bas,' Quixote, Xerez, Mexico, Texas, and not from the beginning reloj, bajo, Jerez etc., as has been written since 1846? An explanation might perhaps be found, shewing the present value of $x$ to have been the original ; still there would be ample ground to justify doubts as to the original similarity of $x$ on the one side and $j$ and $g$ on the other. For as specialists know and tell us, $x$ had at all events up to the 16 th century the value of French ch, $g$ and $j$ of French $j^{2}$. The writing therefore was in this case too the true witness, oral tradition the false.

There must be added however an important point, which has been emphasized by the Greek Psichari ${ }^{3}$. As a matter of course that only can pass for oral tradition and evidence, which really exists in the language of the people, not anything which may have been violently foisted on the language by the learned and cultivated out of regard for writing or some other supposed standard of accuracy. Now in the case of the Greek of to-day the genuine language falls foul of the traditional writing much

[^4]${ }^{2}$ Diez, p. 371 f.
more frequently than the language of the learned. The latter it is true has in those cases, where a sound has undergone a universal transition into another, adopted the new sound, so that now this new value is actually attached to the symbol, as for instance that of $f$ to $\phi$ and that of $i$ to $\eta$; but where the new sound has appeared only under certain conditions occurring in a minority of cases, the cultivated language, clinging to the writing, frequently does not admit it. Every $e$ $(a \iota, \epsilon)$ or $i(\iota, v, \epsilon \iota$, etc.) when followed by a vowel becomes $y$ in the real spoken language: nyos véos, palyós ma入aıós, yos viós; but neither the cultivated nor the Reuchlinians are willing to pronounce thus, although the latter, if they want to follow the testimony of the living language, would certainly be bound to shew their adherence in this point also. Moreover the language as now spoken tolerates neither two tenues in juxtaposition nor the combination of nasal with spirant; we must therefore force on ancient Greek the rules that $\kappa$ and $\pi$ are to be pronounced as (German) ch and $f$ before $\tau$, and that $\nu, \mu$ and $\gamma$ must be assimilated or allowed to drop out before $\theta, \phi, \chi$. It is of no importance whatever in this respect that educated Greeks are careful to preserve the value of $\kappa$ and $\nu$; for that takes place not as an effect of oral tradition, which they wish to make their support, but of written tradition, which they despise. The Reuchlinian therefore ought to say eftá, ochtó, niff (nifi) for $\nu v \dot{\prime} \mu \eta$ etc., and arrange everything under proper rules the number of which must certainly be very great; otherwise he transgresses at every step his own principle. Finally there is no lack of points, as regards which the testimony of oral tradition is entirely at variance, according to dialects and localities; for example with respect to the pronunciation of $\kappa$ before $\epsilon$ and $\iota$ (kye, tye, chye, che, tsye, tse $=\kappa \epsilon$ ), or that of $\chi$ after $\rho(k$ or $c h$ ): where consequently as a matter of fact we have no evidence. This is all emphasized by Psichari, and the necessary inference to be drawn from it is that the Reuchlinian principle neither is nor can be carried out in practice.

## Section 5.

## Method of ascertaining the ancient pronunciation.

The matter then stands thus; for the original sound, writing is our evidence, for the present sound (and for this only), the living representatives of the nation, and the point to be investigated is, how long the original sound has stood its ground, and when the present sound began. This investigation must be carried on separately for every single sound, for the results may be very various. The sum of these is a piece of sound-history of the Greek language, to be supplemented from the alterations which become apparent in the writing, which latter however belong more to the prehistoric than the historic period. Looking at it in this light we first see the whole of the significance of the subject, and, it must be confessed, the whole of its difficulty. It is true the general rule, by which to decide, whether a sound at a given time retained its original value or had already passed into another, may simply be taken over from allied fields of enquiry. E.g. the fact that French ens in the golden age of old French literature was identical with an, is inferred among other proofs from its confusion with an which already took place at that period ${ }^{1}$; conversely if such a confusion did not appear, it would be concluded with equal certainty that en still had the $e$ sound. If then in like manner we say with regard to the Greek $a \iota$; it was in the Attic period a real double sound, since it is exchanged neither with $\eta$ nor with $\epsilon$; this is a mode of reasoning, the justness of which no one would impeach in the domain of any other language. In fact it is quite clear that, if ac was identical with $\vec{e}$ and also $\eta$, even in the case of a much more learned people than the ancient Athenians some confusion in writing would infallibly have occurred, especially during the course of so many centuries. We have only to notice in comparison, how shifting and uncertain the Latin writing is in the period of the Republic in spite of the exertions made by the grammarians from an early date to regulate it. Even if we suppose that ac was an e très

[^5]ouvert, while $\eta$ was an ordinary open $e$, such a trifling difference as that would not long have been adequate to hinder confusion. This then is the first and most general method: investigate up to what period the writing is constant and when it begins to be no longér so. Next we have direct information and descriptions in the works of the grammarians, and can also draw inferences indirectly from the grammatical nornenclature and classifications of sounds, from directions as to orthography and so on. Further phonetic transitions within the word and especially in the combination of words have weight; for if $\epsilon \pi \imath^{i} \hat{\mathscr{\omega}}$ becomes $\epsilon^{\prime} \phi^{\prime} \mathscr{\psi}^{\hat{\psi}}$, and каì $\neq \sigma \tau \iota$ becomes $\kappa a ̈ \sigma \tau \iota$, this teaches us something about the value of $\phi$ and $a \iota$, since this fact is utterly irreconcilable with certain values of these symbols. Of great importance too are transcriptions from and into other languages, and here Latin is of primary value for Greek, just as Greek is for Latin. Kє́ $\lambda \epsilon \rho \epsilon \varsigma \mathrm{K} \iota \epsilon \epsilon ́ \rho \omega \nu$, Cimon Cyrus, are in themselves adequate evidence for the fact, which is established by other considerations, that Latin $c$ was always $k$ in the classical language; for no one can doubt that this was the value of $\kappa^{1}$. In like manner transcriptions such as Athenae, ecclesia, к $\hat{\eta} \nu \sigma o s$, 人оикр $\dot{\gamma} \tau \iota o s$ are alone sufficient proof that $\eta$ was equivalent to $\bar{e}$; for that Latin $e$ was not equivalent to $i$ is doubted by none except those who have given their verdict after having bowed their necks once for all to modern Greek authority. Such people are doubtless skilled to throw doubt on that which is most firmly established, and give a plausible appearance to that which is most questionable, according as it falls foul of or is at harmony with this authority ${ }^{2}$. Much light can be obtained for Greek from


#### Abstract

${ }^{1}$ It is true that in the 16 th century the point was not considered to be settled; Bishop Gardiner prescribes: in $k$ et $g$ quoties cum diphthongis aut vocalibus sonos $i$ aut $e$ referentibus consonantur, quoniam a doctis etiamnum in usu variantur, aliis densiorem aliis tenuiorem sonum affingentibus, utriusque pronuntiationis modum dis. cito, ne aut horum aut illorum aures offendas...; caeterum qui in his sonus a


pluribus receptus est, illum frequentato.
${ }^{2}$ Ellissen, p. 136: "we do not know how the Romans pronounced $e$; we do know however, that in the Romance daughter-languages an $i$ has been developed out of it in numberless words" ( $\mathrm{Diez}, 1^{3}, 150 \mathrm{f}$. states that the transition of $e$ to $i$ is common to the Romance languages but not usual outside France).
oriental languages also, for instance from Coptic. Lastly the plays on words depending on similarity of sound (analogous to rime, which in the case of Mediæval languages is certainly a far more excellent resource), also etymologies in ancient writers, imitations of the cries of animals and so on must be laid under contribution for information. This last expedient, especially the $\beta \hat{\eta} \beta \hat{\eta}$ of Kratinus, furnishes a Reuchlinian like Ellissen with a handle for cheap witticism making it appear as though the contest about $\eta$ was merely a contest to decide the competence of a wether as witness for the pronunciation of a Plato and a Demosthenes; with these and similar turns of speech he can wriggle successfully out of the quite unimpeachable evidence, which is contained in this representation of the cries of animals ${ }^{1}$. I mention this here, as I have no inclination after this to enter the lists at all with opponents, who substitute dogma for enquiry; they will not submit to refutation, and we can only take leave of them with the words recommended by the ancient
 $\delta$ è $\tau a ́ \delta \epsilon$. They are fortunately not too numerous among us.

## Section 6.

## Degree of accuracy attainable.

If then all these expedients and especially the deviations of writing in the inscriptions and papyri, which have become so numerous in our time, are made use of in a critical and unbiassed manner, satisfactory results can certainly be obtained, provided that we do not look for too much. For neither can precise limits of time be given for the transitions, nor can these themselves and the original sound be denoted with mathematical precision. We find Cheke insisting that these things
 every science has its own degree of precision attainable. For instance it is certainly not sufficiently precise, if I give the

[^6]sound of $\eta$ as $e$; for there are two sorts of $e$ 's, the open and the closed. If however I say $\eta$ was the open $e$, I ought not to be asked further, which open $e$ ? although, as is well known, the French distinguish three sub-varieties in their language: an ordinary open $e$, a more open, and a very open one. This is by no means a matter of indifference for harmony and correctness of pronunciation : but no one can expect to know anything about such subtleties in the case of a dead language. Lastly there are not merely three open e's, but a numberless series, and the same holds good with regard to the other sounds and combinations of sounds; for instance a diphthong can be spoken with greater or less preponderance of one or the other vowel, without regard to the possible variety in the single elements. I am perfectly convinced, that, if an ancient Athenian were to rise from his grave and hear one of us speak Greek, on the basis of the best scientific enquiry and with the most delicate and practised organs, he would think the pronunciation horribly barbarous. But if he heard a modern Greek, he would not indeed be so loud in his censure, simply because he failed to observe that this is supposed to be his own language. For where, not to mention all the other points of difference, acute and circumflex are not differentiated, and every accented vowel is pronounced long, every unaccented vowel short (e.g. févoıтo yènŭtơ), there the language has suffered a change affecting its very essence and something absolutely new has been developed out of the old. Nor would the ancient Athenian think the language especially agreeable to the ear, I mean ancient Greek in the mouth of the modern Greek. His taste would probably coincide with that of Dionysius of Halicarnassus and Hermogenes, who both declare $\iota$ to be of all vowels the least agreeable to the ear and the most wanting in dignity ${ }^{1}$. But in ancient Greek, spoken according to the fashion of the modern Greek, this vowel has an unnatural preponderance. Finally, if a German came with his Reuchlinian pronunciation, observing quantities with pedantic care, the ancient Athenian would probably stop his ears at such disfigurement of

[^7]his language (if indeed he recognized it as such) and at such discordant sounds. For who (to take an instance from Herodo-
 $\dot{v} \gamma \iota \epsilon i \eta s$ and all the similar monstrosities, such as never appear in any real language? The ancient Greeks, as soon as $\epsilon \iota$ became simple $\bar{i}$, no longer said írıєia but írєia, and in like manner $\tau a \mu \epsilon i o \nu$ for $\tau a \mu \epsilon \epsilon \hat{\imath} o \nu, \pi \epsilon i \nu \nu$ for $\pi \iota \epsilon \hat{\imath} \nu$, just as at an earlier date $\pi o ́ \lambda \iota$ was contracted to $\pi o ́ \lambda \iota, \Delta \iota i$ in many cases to $\Delta i$. However we are at liberty by all means to pronounce as we please; we are perfectly secure against the censure of the hypothetical ancient Athenian, and this fiction only illustrates the fact, that we can attain perfect accuracy neither in practical pronunciation nor in theory.

After this rather long introduction I reach my subject, and first in order the history of the vowels and diphthongs.

## I. Vowels and Diphthongs.

## SEction 7.

## System of Vowels.

The relation of the vowels to one another is excellently illustrated by modern authorities, for instance R. Lepsius ${ }^{1}$, by the well-known triangle, having at its corners $a i$ and $u$. Between $a$ and $i$ come the two $e$ 's, the open (French $\grave{e} \hat{e}$, Lepsius' e) nearer to $a$, the closed (French é, Lepsius' e) nearcr to $i$. Both $e$ 's are found both long and short; the German language however wants the short closed $e$, which must be sought in the short $i$ of certain dialects. In like manner between $a$ and $u$ come two o's, an open and a closed ( $\underline{Q}$ and 0 ); these also occur in French: open in encore, closed in amneau, dos; they are however distinguished by no diacritic mark.

1 R. Lepsius, Standard Alphabet (2nd ed. London and Berlin, 1863). I see the less reason for exchanging this triangle for the vowel line which has
lately won favour, since in Greek its end-u-has changed back again to the brginning-i-.

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has evidently been the guide; but the point to be investigated is, how the writing has assumed this form. The names of the vowels were : $\ddot{a} \lambda \phi a, \epsilon \boldsymbol{i}, \dot{\eta} \tau a, i \hat{\omega} \tau a, o \dot{v}, \dot{v}, \dot{\omega}$. The use of $\hat{\epsilon} \psi \stackrel{\psi}{\boldsymbol{\epsilon}} \boldsymbol{\nu} \nu$ and $\hat{v} \psi \iota \lambda o ́ \nu$, i.e. 'simple $e^{\prime}$, 'simple $u$ ', as names ought in reason to be dropped; for when the Byzantines say e.g. тò $\pi a \hat{\imath} \delta \in s$
 $\pi \epsilon \in \delta a \iota \delta \iota a ̀ \tau o \hat{v} \in \psi \iota \lambda o \hat{v}$, they do not mean the adjective to be understood as part of the name of the symbol. 'Simple $\epsilon$ ' is contrasted with the diphthongal writing a $\iota$, 'simple $v$ ' with o $o$, as these pairs in Byzantine times coincided in sound, and we find the expressions $\kappa v \psi \iota \lambda o \nu \nu, \phi v \psi \iota \lambda^{\prime} \nu$, , contrasted with the writings коє, фоь. The case is not far otherwise with the definitions $\stackrel{\rightharpoonup}{o} \mu \iota \kappa \rho o ́ \nu, ~ \hat{\omega} \mu \epsilon ́ \gamma a$, additions which were about as necessary to the Byzantines, with whom these two vowels had the same sound, as the definitions, "hard $T(D)$ ", "soft $D(T)$ ", to the Saxons ${ }^{1}$. Should the names $\epsilon \boldsymbol{i}$, ov not be permissible as liable to be misunderstood, it is at any rate better to say with the later grammarians $\stackrel{\models}{\epsilon}, \stackrel{\circ}{(\breve{e}, \breve{b})^{2} \text {. But the origin of these old names, }}$ which do not tally with the pronunciation, will have to be investigated. In the Greek of the present day the vowelsystem has developed in the following way:-


In this complete incongruity between sound and writing we see a clear indication of the transformation which has taken place in the former since classical times. The $e$ is in modern Greek
${ }^{1}$ The definitions ${ }^{\text {e }} \psi\left(\lambda 6 \nu, i^{n} \psi i \lambda 6 \omega\right.$ have been disposed of by Karl Ernst Aug. Schmidt, Ztschr. f. Gymn. Wesen $18: 51$ p. 433 ff .; Beitriage zur Geschichte d. Grammatik des Cricch. u. Lat. (Halle
1859) p. 64 ff . As names of symbols they are only found in the grammarian of the Etym. Gud. and in Chrysoloras. $\because$ For the evidence sec ib. p. 62 ff .
in general open, especially in accented and long syllables ${ }^{1}$; $o$ also tends that way, but less decidedly. The $\ddot{u}$ sound of $v$ is heard even now according to many authorities sometimes before $r$
 as $e \epsilon$ before $r$ in unaccented syllables ( $\xi \epsilon \rho \frac{\prime}{s}, \theta \epsilon \rho i$ for $\theta \eta p i o \nu$ etc.) is not due to a retention of the ancient sound, but to a modern phonetic law, according to which every unaccented $\operatorname{ir}(\iota \rho, \eta \rho, v \rho$ ) becomes er, as keryaki кvрıaк ${ }^{3}$. But, that the $i$ sound has elsewhere in modern Greek different shades of tone according to its origin, is, according to competent authorities pure invention $^{4}$, in spite of the assertion of Reuchlinians.

## Section 8.

## System, of Diphthongs.

We find in ancient Greek side by side with the vowels and having a like function of syllable-formation a large series of diphthongs, close combinations of pairs of vowels, of which the last is always either $\iota$ or $v$. Since these two can be combined with all the other vowels, short as well as long, and $\iota$ also with $v$ as first element, theoretically we have in all fourteen diphthongs ; these however are not all distinguished in writing, nor indeed can they all be proved even to have had an actual existence ${ }^{5}$ :

| aı ( ${ }^{\text {droopaí) }}$ | $a v(\pi a v i \omega)$ |
| :---: | :---: |
| $\bar{a} \iota$ ( ${ }^{\text {人\%opâ }}$ ) | $\bar{a} v$ ( $\gamma \rho a \hat{v} \mathrm{~s}$ ion. $\gamma \rho \eta \hat{\nu} \mathrm{s}$ ?) |
| $\epsilon \iota(\lambda \epsilon i \pi \omega)$ | $\epsilon \nu$ ( $\epsilon \hat{v}^{\text {) }}$ |
| $\eta \iota(\tau \mu \mu \hat{\eta})$ | $\eta \nu$ ( $\eta$ ü入ouv) |
| ou (oìvos) | ou (oùtos) |
| $\omega \iota$ (of $\delta \omega \iota$ ) | $\omega v$ (ion. dor. $\omega$ vitós = ó aù ${ }^{\text {cós }}$ ) |
| vı (ขéкvı) |  |
| $\bar{v} \iota$ ( $\theta$ viás? |  |

[^8]The oldest theory preserved, that of Dionysius Thrax, numbers only six of these, al, av, $\epsilon \iota, \epsilon v, o l, o v$; later writers go as far as eleven or twelve; we nowhere find more than one $v \iota$ and one av distinguished. According to one distribution ${ }^{1}$ they fall into two classes кípıaı $\delta i \phi \theta$. and катахрךбтıкаi; the former are those named diphthongs by Dionysius, that is those with a short vowel for their first member with the exception of $u$. The reason, why these were called proper and the others improper diphthongs, must rest in the idea, that $\dot{\eta}$ di $\phi \theta$ oryos, scil. $\phi \omega \nu \eta^{\prime 2}$, is properly a more or less simple sound, which however consists of two elements; yi, $\bar{o} u, \bar{e} u$ do not weld together into such a simple sound. For this very reason these three diphthongs are called according to another classification ${ }^{3}$ $\delta i \phi \theta$. катà $\delta \iota \in \notin \neq \delta o \nu$, i.e. those in which the voice passes successively through both vowel sounds. The second class in this classification are the diphthongs кат' є̇тєкра́тєاa⿱, where the one sound prevails over the other and makes it imperceptible: $\bar{a} \iota=\bar{a}$, $\eta \iota=\bar{e}, \omega \iota=\overline{0}, \epsilon \iota=\bar{\imath}$. Lastly come the diphthongs катà крâ $\sigma \iota \nu$, namely those with actual fusion, $a v \epsilon v o v$; for the later grammarians, by whom this doctrine is handed down to us, would leave $a \iota$ and oc altogether out of their classification, in order thereby to explain their different value in respect of wordaccentuation. Since however this distribution was certainly not originally invented with this purpose in view, al and oc also must originally have belonged to the third class ${ }^{4}$. It

> 1 Theodos. Gramm. p. 35.
> ${ }^{2}$ I do not know, what clse except $\phi \omega \nu \dot{\eta}$ (or $\sigma u \lambda \lambda a \beta \dot{\eta}$ ?) it is possible to supply; $\phi \omega \nu \dot{\prime}$ ( $\phi \theta$ ór $\gamma \sigma$ ) is vowel-sound as opposed to the $\psi 6 \phi 0$, consonants (Aristoxenus in Dion. Hal. $\pi . \sigma \nu \nu \theta$. p. 72 R.). The doctrine of the diphthongs will at any rate go back as far as Aristoxenus in its main features, perhaps even farther. For according to Plato (Krutyl. 424 c ; Hipp. Maj. 285 c, B) in his time both oi $\dot{\epsilon} \pi \iota \chi \epsilon i \dot{\rho o u ̂} \nu \tau \epsilon s$ rois $\dot{\rho} v \mu \mu o i s$ and the sophist Hippias busied themselves with the doctrine of letters and syllables, in which pursuit they must inevitably
have come upon the idea of a diphthong (two vowels in one syllable).

3 Theodos. p. $3 \pm$ f., Chœroboskos B. A. III. p. $121+$ f., Schol. Dion. Thr. id. ir. p. 804 , Moschopulos p. 24. In Chœr. $\epsilon \iota$ is entirely left out. The diphthongs каrà $\delta \iota \xi \xi$. are defined (Chœr.) : $\chi \omega \rho \bar{s}$
 those ката̀ к $\kappa \hat{\alpha} \sigma \iota \nu: \sigma v \gamma \kappa \iota \rho \nu \hat{\omega} \sigma \iota \nu \dot{\epsilon} a v \tau \grave{a} \tau \grave{\alpha}$ Súo $\phi \omega \nu \dot{\eta} \epsilon \nu \tau а$ каi $\dot{a} \pi о т \epsilon \lambda о \hat{v} \sigma \iota \mu l a \nu \phi \omega \nu \dot{\eta} \nu$

${ }^{+}$Cp. the introductory words, autraı



must also be mentioned，that Sextus Empiricus ${ }^{1}$ quotes from ＇certain philosophers＇the statement，that there are other ele－ mentary sounds，different from those usually taught，for instance $a l$ ，ov and all similar sounds．For these sounds are，according to their statement，unlike a syllable such as $\rho a$ ，the same from the beginning to the end of their duration，and this is the charac－ teristic of an element．He afterwards mentions $\epsilon \iota$ also as be－ longing to this class，which indeed will coincide with the six diphthongs of Dionysius and with the diphthongs катà крâб兀ь according to the original numeration，to which therefore $a \iota$ and $\epsilon \iota$ also belonged．More discrepant，than at first appears，is the distribution of the musician Aristeides ${ }^{2}$ ：катà кра̂б८v，катà $\sigma \nu \mu \pi \lambda о \kappa \dot{\eta} \nu, \kappa a \tau^{\prime} \notin \pi \iota \kappa \rho \dot{व} \tau \epsilon \iota a \nu$ ；of the diphthongs катà $\sigma \nu \mu \pi \lambda о \kappa \dot{\eta} \nu$ he says，that coming at the end of a word they are less easily shortened before a following vowel than the others，since the tone is stronger owing to the clear pronunciation of both vowels． Now since $\eta v \omega v \nu \iota$ scarcely ever occur at the end of words，we must understand this to refer to $\epsilon v$ and $a v$（ $a \hat{v}, \epsilon \hat{\nu}, Z \epsilon \hat{v}$ etc．），and the corrupt statement about these diphthongs $\tau \hat{\omega} \nu \kappa a \tau a ̀ ~ \sigma v \mu \pi \lambda$ ．， $\lambda \epsilon ́ \gamma \omega \delta \grave{\epsilon} \tau \hat{\omega} \nu \delta \iota a ̀ ~ \tau o \hat{v}$（a poor variant $\delta \iota^{\prime}$ av̀ ${ }^{\prime} \hat{\omega} \nu$ ）$\sigma \nu \nu \tau \epsilon \theta \epsilon \mu \epsilon ́ \nu \omega \nu$, must be emended by the repetition of a letter，$\delta i a ̀ ~ \tau o \hat{u}\langle\bar{v}\rangle$ ． The class $\kappa a \tau a ̀ ~ \kappa \rho a \hat{a} \tau \iota \nu$ would thus be limited to $a \iota, \epsilon \iota, o \iota$ ，except in so far as $\epsilon$ ，having already become long $\iota$ ，had now to be counted in the class кат＇є̇тькра́тєєà．The expressions катà
 and ä $\phi \omega \nu 0<(a \eta \mu)$ I pass over as having no importance by the side of the other．
${ }^{1}$ Sext．Emp．adv．mathem．p． 625

 $\delta \iota \alpha ́ \phi o \rho o \nu$ є́ $\chi o \nu \tau a \delta \dot{\prime} \nu a \mu \iota \nu \tau \hat{\omega} \nu \sigma \nu \nu \eta \eta_{-}$


 $\mu o \nu 0 \epsilon \iota \delta \dot{\prime} s$ ，そ̈ $\sigma \tau a \iota$ каi тaîтa $\sigma \tau o \iota \chi \epsilon i ̂ a$. afterwards 626 after a discussion on

 $\dot{\alpha} \sigma \dot{\nu} \nu \theta \epsilon \tau о s$ каi $\dot{a} \mu \epsilon \tau \dot{\alpha} \beta$ o入os $\lambda a \mu \beta a ́ \nu \epsilon \tau a \iota$,
égrą kai oûtos $\sigma \tau o \chi \chi \in \hat{c}\rangle \nu$ ．If then in the time of Sextus（about 200 A．D．）ac was pronounced ever so decidedly as ä， we get no new element out of this or out of $\epsilon \iota=\iota$ ．Accordingly the philosophers referred to in the sentence，in whose time $\epsilon \iota$ was still a diphthong，must be earlier．
${ }^{2}$ Arist．Quintil．p． 44 Meibom．

 крáтєlà $\gamma і \gamma \nu \epsilon \sigma \theta a i \quad \phi a \mu \epsilon \nu)$ ．Afterwards

 $\tau$ à $\phi \omega \nu \dot{\prime} \epsilon \nu \tau a$ ．
$\kappa \rho \hat{\sigma} \sigma \iota \nu$ and кат⿳亠 $\sigma \nu \mu \pi \lambda о \kappa \dot{\eta} \nu$ are a marvellously happy definition of the distinction intended; for in proper diphthongs, as Rumpelt says ${ }^{1}$, the voice sounds during the movement from one vowel-position to the other and only during this movement, so that an actual 'mixture' takes place as between water and wine ; in improper diphthongs on the other hand the relation of the sounds one to the other is an 'interweaving'. We are unfortunatcly not in a position, with the means at our command, to follow up to its sources with any certainty the ancient theory of diphthongs.

## Section 9.

E and O sounds, their oldest development and representation.
As regards the value of these vowels and diphthongs, since $a$ admits of no doubt whatever, we will begin our investigation with a discussion of the E and O sounds. Originally, and in most local alphabets up to the year 400, every $e$ was written with E, every o with $\mathbf{O}^{2}$. The Greeks of the East however, and especially the Ionians of Asia Minor, at a very early period employed the symbol H, Phoenician Cheth, properly used to signify the rough breathing, as a vowel-symbol for a particular kind of $e$. This was in fact very readily done in Asiatic Ionia where the breathing was lost; the symbol in consequence of this was now called $\eta^{\dagger} \tau a$ instead of Cheth ${ }^{\circledR} \mathrm{H} \tau a$, and began with this vowel, exactly as ${ }^{\prime} \lambda \phi a$ with $a$. At a somewhat later time, about the sixth century, various attempts appear in various localities, to distinguish the corresponding O sounds by the introduction of a new symbol. The symbol $O$ was differentiated by leaving the circle open (C), or by a point in it (O), or by leaving it open below and annexing two feet $(\Omega)$; this last form ultimately prevailed, and was applied in the manner adopted by the Ionians of Asia, according to which the new symbol corre-

[^9][^10]sponded to H , the old symbol O to $\mathrm{E}^{\mathbf{1}}$. But that, which was so carefully distinguished in the cases of $e$ and $o$, was by no means, as has been assumed since the days of Greek grammarians, the quantity. For, although H almost never and the corresponding O symbol in no instance whatever represents a short sound, E and $O$ are as late as the fourth century used for long sounds, for those namely, which in the developed orthography are written diphthongally $\epsilon \iota$ and ov respectively, without however being really by origin diphthongs arising from $\epsilon+\iota, o+v$ respectively. In $\lambda \epsilon i \pi \pi \omega$ and $\gamma^{\prime} \dot{\nu} \in \iota$ the $\iota$ is radical, as is also the $\nu$ in ov and ov̂tos; on the other hand in ${ }^{\prime} \sigma \tau \tau \epsilon \iota \lambda a, \sigma \tau \epsilon \bar{\epsilon} \lambda \epsilon \iota \nu, \tau \iota \theta \epsilon i \varsigma, \phi \iota \lambda \epsilon \hat{\imath} \tau \epsilon$ the $\epsilon \iota$ is merely lengthened $e$, and in $\beta o u \lambda \eta$, $\delta \iota \delta o v^{\prime}, \mu \iota \sigma \theta o v \tau \epsilon, ~ \lambda o ́ \gamma o u ~ t h e ~ o u ~$ lengthened $o$. On the one hand, therefore, the Greeks distinguished $\epsilon$ and o together with their lengthened forms, and on the other the sounds $\eta$ and $\omega$ which were always or almost always long, and furthermore it never occurred to anyone in ancient Hellas to distinguish in script $\check{a}$ and $\bar{a}, \check{c}$ and $\bar{\imath}, \check{v}$ and $\bar{v}$, the natural way to do which would have been to double the vowel, just as the consonants were written doubled for similar reasons. Consequently the distinction between H and $\mathrm{E}, \Omega$ and O was originally one of quality ${ }^{2}$, and the only qualitative distinction which can have been intended is that which the Italians make prominent both in pronunciation and in grammatical writing in the case of these two vowels and only these, namely the distinction between open and closed $e$ and $o$. The quantitative distinction came to pass accidentally and secondarily, after $\epsilon$ and $o$ had been distinguished from their lengthened equivalents by the diphthongal writing of the latter, and it became the more obvious and finally as early as Aristotle ${ }^{3}$ the only distinction recognized. But which $e$ did the ancient Ionians intend to represent by $H$, and which $o$ by $\Omega$, the open or the closed? On this point the old inscriptions of Keos Naxos and perhaps

[^11]application, by Dittenberger on the subject of the old Naxian and Kean inscriptions (Zum Vocalismus des ioni. schen Dialekts, Hermes xv., 225 ff.).

3 See Arist. Poèt.c. 21.

Amorgos also are especially instructive; in them H and E only partially coincide with ordinary H and $\mathrm{E}^{1}$. For there H is only written for that $e$, which corresponds to old Greek (Doric) $\bar{a}$, and also that arising from contraction of $\epsilon a$ : OIKIH, $\triangle$ HMOS, EПHN, OYH, (тí $\theta \dot{v} \in a$ from $\tau \grave{\partial} \theta \dot{\theta} \circ \varsigma)^{2}$; the $\eta$ on the other hand which is common to the Greek dialects together with $\epsilon$ and $\bar{\epsilon}$ is denoted by E, without admixture of diphthongal writing ${ }^{3}$ : ME $\mu \dot{\eta}$, EПlBAEMA $\epsilon \pi i \beta \lambda \eta \mu a$, ФEPEN $\phi \dot{\epsilon} \rho \epsilon \iota \nu$, ENAI $\epsilon i \nu a l$. The Naxians represent the short sounds also with H, if they have arisen from long $\bar{a} ; \Delta H M O \Delta I K H O \quad \Delta \eta \mu о \delta i \kappa \epsilon \omega, ~ A \Lambda H O N$ $\dot{a} \lambda \lambda \dot{\epsilon} \omega \nu^{4}$; in Keos $\epsilon$ is written in these cases. If then in these dialects that sound is written with H, which elsewhere has the value of $a$, and previously had that value universally, we must give to H the value of open $e$, that is, the $e$ which stands nearcr to $u$, and to $\mathbb{E}$ that of closed $e$, that is, the $e$ which stands nearcr to $i$, especially as this corresponds to the writing EI cur-
${ }^{1}$ Cp. Dittenb. l. c.; Mitth. des archcol. Instit. I. 139 f7., (Keos U. Küler) = Rühl, Inscr. Gr. antiquissimae no. 395 ff. ; Bulletin de correspondence Hellénique, in. 1 ff. (Bustrophedon Inscr. on the offering of a Naxian woman) $=$ Rôhl 407 ; Bechtel 23, Bull. vi. 187, Mitheil. xi. 97 (Amorgos); Bechtel, 29 ff. ; Kirchhoff ${ }^{4} 32$.
${ }^{2}$ The two last examples on line 17 of the longer Kean inscr. (derived from a correction on the stone); in the same place occur also $\delta \iota a \rho a \nu \theta \hat{\eta} \iota$ and line 23 $\theta$ á $\nu \eta l$; thus in the diphthong $\bar{e} i$ ( 24 $\dot{\epsilon}_{\xi} \in \nu(\chi \theta \epsilon \hat{\imath})$ a mixture of the two E sounds appears. But this occurs in Attic also and elsewhere: TEI for $\tau \hat{\eta}$ side by side with THI. Dittenberger's endeavours on this head are in my opinion misplaced. Röhl's restoration TH[ $\lambda o \hat{u} \sigma \tau \dot{a}]$ N'TA 1.16 I consider wrong on the score of meaning; for alustration of the interior of the house ( $\delta, a \rho \rho a l \nu \epsilon \tau \nu)$ cannot be accomplished from a distance. The Naxian Inscr. offers only one stumbling block IIKIIBONOI $\dot{\epsilon} \kappa \eta$ $\beta \dot{u} \lambda \psi$, which $D$. is certainly right in ex-
plaining as a graver's error for HEKHB.; for $H$ here still keeps the value of the breathing as well as the other. On the Naxian bronze published by Frankel Arch. Z.1879, $84 \mathrm{ff} .(=$ Röhl 408) we find EKHBOAOI. I may here remark, that Merzdorf (Curtius Stud. ix. 202 ff.) tries to prove a double value of $\mathbf{H}$ in ordinary Ionic: from $\lambda$ aós, $\lambda$ pós (open e) came $\lambda \epsilon \omega$; from $\beta a \sigma \iota \lambda \hat{\eta}$ os on the other hand (e original and closed) $\beta a \sigma i \lambda \notin o s$. $\pi$ ódews however occurs twice on the tolerably old inscr. of Chios; Cauer no. 133, Rohl no. 381, Bechtel 174, cp. id. p. 107.
${ }^{3}$ But in C. I. Gr. 2363 b, Bechtel 44 (Keos) Eİ occurs twice in proper names of the 3rd declens. alongside E (according to the earlier copies, while the later shew lacunae in the places in question).

+ Comp. mó入йas in verse, Abdera Röhl 349, Bechtel 162. IIIPON Thasos liöhl Imag. 52 , no. 4 is explained by Bechtel (Ion. Inser. 56) as a mistake for llll'., since loós is found elsewhero in I'hasos.


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but $e 屯$ readily gives $\underline{e}$, standing as it does midway between the two. The same fullows for Doric from the contraction of $a \in$ to $\eta: \nu \iota \kappa \bar{\eta} \nu, \tau \bar{\eta} \mu \dot{a}$ i.e. $\tau \grave{a} \dot{\epsilon} \mu a \dot{a}$. In fact for dialectal $\eta$ in general we must everywhere assume the same sound of open $\underline{e}$, and accordingly the following history of the E sound for Greek becomes evident ${ }^{1}$. The short $e$ had at that prehistoric time, when forms such as $\pi o \iota \eta \bar{\eta} a \iota \pi a \tau \eta \dot{\eta} \rho \eta{ }^{\prime} \sigma \theta \iota o \nu$ arose, still an open sound; for the lengthening gave $\eta \underline{e}$. This open sound may have been retained in those dialects, which in later formations also, such as contractions, keep $\eta$ as lengthened equivalent of $\epsilon$, that is in Arkadian Elean Lakonian Lesbian etc. The Dorian dialects coming under this category having $\hat{\eta} \chi \chi^{\circ}$ for $\epsilon \mathfrak{i} \chi o \nu, \dot{\epsilon} \phi \iota \lambda \hat{\eta} \tau 0, \hat{\eta} s$, are united by Ahrens under the name of the stricter Dorism. These then, and the Lesbian etc., had everywhere only one sort of $e$, the open, at least in the long sound, for the short may indeed subsequently have had the same development in these too, which it had long before elsewhere. In the milder Dorism, in Bootian, Thessalian, and Ionic, $\epsilon$ became at an early period $e$, hence its lengthened equivalent $\epsilon$. Further the old long sound as in $\pi a \tau \dot{\eta} \rho$ remained in most dialects open; but among the Ionic Keaus and Naxians and also in Bœotia and Thessaly it got the closed sound: MHTEP métēr (Keos), MATEP and from the fourth century onwards MATEIP in Bœotia and Thessaly. In the last two dialects therefore there was also only one kind of $e$, that is the closed, except in so far as an open $e$ had been newly developed out of al. Lastly the special Ionic $\eta$ was everywhere $e$. The case is partly analogous, partly different, with respect to the o sounds. Since $\boldsymbol{\omega}$ was open, o must have been so too at the time when the nominative $-\omega \nu$ arose from -ov and the augment $\omega$ from $o$; the open sound maintained its ground still longer in those dialects, which made $\lambda_{o ́ \gamma \omega s}$ out of $\lambda o ́ \gamma o v s$ and $\lambda o ́ \gamma \omega$ out of $\lambda$ óroo, that is, roughly speaking, the same, which shew $\eta$ for $\epsilon \ell$, and also Bœotian. In the rest o became at an early period $o$, hence the lengthening ou. Finally the original long sound as in $\lambda \epsilon \epsilon \omega \nu$ remained open everywhere except in Thessalian, where it was represented by ou.

[^12]
## Section 10.

## EI and OT from E and O.

I have intentionally deferred to this point the important question, what the sounds are, which are represented by $\mathrm{EI}=\bar{\epsilon}$ and $\mathrm{O}=\bar{o}$. First of all there is no doubt on this point, that the real $\epsilon \iota$ as in $\lambda \epsilon i \pi \omega$ and the real $o v$ as in ovitos were originally the diphthongs $e i$ (more accurately $e i$ ) and ov (more accurately ou); with these diphthongs at a later period, lengthened $\epsilon$ and $o$ are universally confounded in writing, and were so, in many places, even at an early period. This levelling took place earliest in Corinth and its colonies, in the sixth century or even earlier. By the Corinthians the local symbol $B$ was employed for $\epsilon$ and $\eta$, the ordinary E for $\bar{\epsilon}$ and $\epsilon \iota$ : $\Delta$ FENIA (real $\epsilon \iota$ ) $\Delta \epsilon \iota \nu i o v, ~ П O T E \Delta A N ~$ (do.) Потєєסáv, K $\Xi_{\epsilon \nu o \kappa \lambda} \hat{\eta}^{1}$. In Corcyra $B$ is the only form, and both $\epsilon \iota^{1}$ s are written diphthongally ${ }^{2}$. In both places and also in the Sicilian colonies of Corinth spurious ov is denoted by Or, while O serves for $o$ and $\omega^{3}$. This OT is found also instead of $\Upsilon$ in the diphthong $\epsilon v$ : 'A $\chi \downarrow \lambda \lambda \epsilon \sigma u{ }^{\prime}$ s on a Corinthian vase ${ }^{4}$; correspondingly Corinthian $\mathrm{E}=\epsilon \iota$ as second element of the diphthong a $\boldsymbol{a}$ : A $\Theta A N A E A$ 'A $\theta a v a \epsilon i a$ 'A $\theta a v a i a^{5}$. All these forms of writing are not perfectly constant ; for example here and there the Corinthians resolve their E into $\mathrm{B} \mathrm{\Sigma}(\epsilon \ell)$, as $\Pi$ OTB $\triangle \triangle \mathrm{AN}$, once we find even 'A $\mu \phi \iota \tau \rho i \tau a$ written with $\mathrm{E} \epsilon \iota$ in the penultimate

[^13]$\gamma b \rho \eta$ s Naxos R. 408 ; $\Delta$ EINO Melos R. 433 ; $\Delta \epsilon \iota \nu$ las C. I. A. 1. 299, 433, 447, 483.

2 Epitaph of Menekrates (Röhl 342) द̇тоíє. Epitaph of Xenvares (R. no. 344) $\mathrm{M} \epsilon i \xi \cos$ (real $\epsilon \iota) \epsilon i \mu$.
${ }^{3}$ Kirchhoff ${ }^{4}$, no. 104 f.
${ }^{4}$ Collitz Dial. Inschr. 3122 (dnnali dell' Inst. 1862, 56 ff.).
${ }^{5}$ Röhl no. 20, 4 comp. 5.
syllable ${ }^{1}$. From all this it is quite clear, that the lengthened equivalents of $\epsilon$ and $o$ had become so near to $i$ and $u$ respectively, that a need was felt of differentiating the real and spurious $e$, and in like manner the real and spurious $o$, while on the other hand no such need was felt of separating original diphthongal $\epsilon \iota$ and $o v$ from the newly developed mixed sound. The mixed sound was thought to be heard in diphthongs such as a८ and $\epsilon v$ also, and a corresponding mode of writing was adopted. This sound might be represented by $e^{i} e_{i}, o^{n}{ }^{\circ} u$; the ' $i$ pingue' of Lucilius, which he wrote ei (puere $i$ nom. plur.), will be nothing else but the Corinthian E. For the other Doric dialects our material is not at present adequate; but the diphthongal writing of $\epsilon \iota$ and $o v$ is to be found on one of the Lokrian bronzes of the fifth century ${ }^{2}$. The old Ionic and Attic inscriptions nowhere or almost nowhere shew E for real $\mathrm{EI}^{3}$, but at a very early period EI for $\bar{\epsilon}^{4}$, although the Athenians in particular in by far the larger number of cases do not separate $\epsilon$ and $\bar{\epsilon}$ in script. We must here state our opinion: the sound which is constant in writing, that is real $\epsilon \iota$, was constant also in pronunciation; that which was shifting in writing was shifting also in
${ }^{1}$ On the Corinth. clay tablets, published by Röhl under no. 20, חoтєıठầ is written 26 times with $\mathrm{E}, 4$ times with $B \Sigma$ (once also HOTB...), twice with $B=\epsilon$, twice with $\Sigma=\iota$, and once with $E \Sigma=\epsilon u$. The last three forms are rightly considered by Kirchhoff ${ }^{4}$, 103 (note) as errors (omission); in fact חlor$<\mathrm{E}>\delta \dot{\alpha} \nu$, 'A $\theta<\alpha<\nu \alpha$ etc. are also found. We have a certain example of $0=o v$ in AฯTO Rühl no. 329 (Anaktorion according to Kirchhoff).
${ }^{2}$ Cauer, Del ${ }^{2}$ no. 229; Röhl no. 321; Kirchhoff p. 146; v. Wilamowitz Ztschr. f. Gymn.-Wesen. 1877, 642.
${ }^{3}$ For Attic see Cauer (in Curtius Stud. viir. 231); he produces as examples of $\mathrm{E}=$ real $\epsilon \iota$ only 0 AEZON (so C.I. $A$. 1. 37 (9)??) iv. $53^{\mathrm{a}}$, with OAEIZON 1 B 33 ; iv. $27^{\mathrm{b}} 18$. There are found besides MEEIAOE IIelfioos C. I. A. iv. $373^{n}$; EXこмaE4ATO? do. 53n 22 ; nlso
(Kretschmer Ztschr. f. vgl. Sprachf. N. F. re. 154) HPAKAE $\Delta$ HS C. I. $A$. rv. $491^{10}$; KETAI кєîtaı do. $491^{127}$; MENEKAEDEL $373{ }^{117}$. These are almost all private inscriptions.-But
 the Ionic shortening of this verb.
${ }^{4}$ Teos C. I. Gr. $3044=$ Röhl 497 KEINO B, 7 ; in the same place 6 in. stances of E in this word. Halikarnassus R. 500 at least 4 times EINAI ( $w$ th E only two certain instances) ; EIXON; on the other hand $\phi \in$ érelv and $\dot{\epsilon \pi \kappa \kappa a \lambda \epsilon i \nu}$ with E. The Sigean Inscr. R. 492 has ci $\mu$ in the Ionic part with E , in the Attic with EI. Miletus 6th cent. (Kirch. p. 19 ff., Bühl 488, 485) : $\epsilon l \mu l$, K $\lambda \epsilon \epsilon \sigma$ cos i.e. K $\lambda \epsilon l \sigma c o s, \xi \pi o l \epsilon \nu$ i.e. $\dot{\epsilon} \pi o l \epsilon \iota \nu$. Athens C. I. Att. I. 1 thrice EINAI; Bull. de corresp. ILell. mir. 179 ELMI. Comp. Ganer C. St. vili. 230.
pronunciation. Consequently $\lambda \epsilon i \pi \omega$ did not tend to be pronounced as lèpo, but $\phi \epsilon \in \epsilon \iota \nu$ ( $\Phi E P E N$ phẹeẹn) did tend to the pronunciation pherein, without however the $i$ in this case being very prominent. For the different treatment of the two sounds is a proof that they were not quite similar in the fifth century: etymological scruples about original $i$ were obviously foreign to those writers. I am consequently opposed to the opinion, which is tolerably general at present, being held by Brugman ${ }^{1}$ and after him by G. Meyer, according to which the spurious $\epsilon \iota$ never had the value of a diphthong among the Athenians and Ionians, but was only an orthographic expression for $\bar{e} ;$ A. Dietrich ${ }^{2}$ seems to me rather in this respect also to have seen the truth. For distinction of quantity cannot be regarded either in this case or elsewhere in ancient times as the cause of difference in writing: consequently the second syllable of $\phi \epsilon \rho \epsilon \iota \nu$ was distinguished from the first in quality. The levelling of $\epsilon \iota$ and $\bar{\epsilon}$, that is the passing of both of them into the mixed-sound described above, takes place for Athens and Ionia in the fourth century ; after the first decades of this century $E$ is very seldom found for spurious $\epsilon \iota$, although this mode of writing can be traced beyond the middle of the century ${ }^{3}$. The Bœotians write their long closed $e$ ( $=$ Att. $\eta$ and $\epsilon \iota$ ) even in the fourth century very frequently with $\mathrm{E}^{4}$; the thickened pronunciation can scarcely here be traced back beyond the beginning of this century ${ }^{5}$. Subsequently the $i$ everywhere prevailed over the $e$ in the case of the later (spurious) $\epsilon \iota$ of the various races, just as had long before happened in Bœotia in the case of the real $\epsilon \iota$. The view of Zacher (p. 30 of the treatise referred to on p. 16), that real
${ }^{1}$ Brugman C. St. iv. 82 ff.
${ }^{2}$ A. Dietrich Kuhn's Ztschr. xiv. 67; Rödiger Progr. Berl. (Luisenst. Gymn.) 1884 p. 6.
${ }^{3}$ The latest Attic examples known
 ( $341 / 0$ в.c.) C. I. 4 . II. 872 ; $\dot{a} \pi \delta \delta \dot{\omega} \sigma \in \nu$ and $\epsilon$ '́s do. $804 \mathrm{~A}^{\mathrm{a}} 33, \mathrm{~b} 13$, b.c. $334 / 3$. 'Àıкар ${ }^{\prime} \alpha \sigma \sigma \hat{\epsilon}$ (dative) is found in the inscr. Bull. de corr. Hell. 1888, 173 (в.c. 354 / 3).
${ }^{4}$ For instance the inscr. of Orcho-
menos Bull. de corr. Hell. ini. 454, Dialekt. Inschr. 470, composed soon after 330, has in five instances EI only once, E4 times; that from Thespiæ id. p. 382, Dialekt. Inschr. 798, never has EI.
${ }^{5}$ Examples on the Theban inscrip. Röhl no. 300, which shews in essentials the Bœotian alphabet; here EI comes four times, E thrice; and $\mathrm{K} a \lambda \lambda \iota \kappa \rho a_{\tau} \mathrm{EIs}$ on the archaic inscr. of Akraiphia, Lolling Monatsber. d. Berl. Akad. 1885, 1031 no. 4, 2 .
and unreal $\epsilon \iota$ were united in the 4 th century into a pure closed $e(\bar{e})$, seems untenable. For if $-\epsilon \iota \nu$, as we are bound to assume, was in the 5 th century $e^{i} n$, but in the 2 nd or 1 st $i n$, it is quite certain that it cannot in the meantime in the 4th and 3rd have been è $n$. With regard to the Attic-Ionic $o v=\bar{o}$ the case stands thus : the mode of writing was for a long time almost exclusively O, nay, isolated instances occur, where it is written for $\dot{o} v$ diphthong, as in TOTON $\tau o{ }^{\prime} \tau \omega \nu^{1}$. Even after the reform of the Attic orthography the simple $\mathbf{O}$ held its ground with great persistency, (and got more and more to be used quite indifferently for ou and $\bar{o}$ ), isolated examples occurring up to the end of the fourth century ${ }^{2}$. In this case then the designation of the diphthongal sound is at an ancient period no more constant than that of the lengthened sound, and accordingly the diphthong ov had as early as the fifth century coalesced with a sound, which arising from $\bar{o}$ approximated to $\bar{u}$, and finally became an undoubted $\bar{u}^{3}$. When the Bœotians in the fourth century adapted their own to the ordinary orthography, they employed the combination OT in this value, that is for their old $\Upsilon$, for which unlike most of the other Greeks they had preserved the old $u$-sound. In the first quarter of the fourth century however the difference in quality between $o$ and its lengthened form cannot have been great at Athens, since to take an instance on the document of the new

[^14]176). Other examples of $O$ for real ov from the 5 th and 4 th centuries are given by Meisterhans Gr. d. att. Inscr. ed. 2, p. 49. For $o v=\bar{o}$ the oldest example on stone is C. I. A. r. $36 \Lambda 0$ (end of the 6th
 121 ; exx. on vases Kretschmer, p. 154 (cp. p. 30, n. 3).
${ }^{2}$ The latest Attic exx. C. I. A. ir. $836 \mathrm{c}-\mathrm{k}$ Ma入 $\theta a \kappa l o(v)$ and other genitives in -ov, Meisterh. ${ }^{2}$ p. 6, n. 21. The inscription dates from the time of the Chremonidean War (circ. 262). See also Bull. de corr. Hell. nir. 513 конд nud $\mu \nu \lambda \omega \theta \rho o ̂$ ( B.c. 302, 301).
${ }^{3}$ Acc. to Dictrich p. (i).
maritime alliance $(378 / 7)^{1}$ simple O stands or stood forty times for this ov, while ov is only written three times for it. And nevertheless in the same document every $\epsilon \iota$ is constantly expressed by EI. In agreement with this Plato in the Kratylus ${ }^{2}$ indicates the difference between $\kappa a \lambda o{ }^{\prime} \nu$ and $\kappa a \lambda o \hat{v} \nu$ simply as one of accent and quantity. On the other hand on a stone of the year $363 / 2^{3} \bar{o}$ is written only nineteen times with O and twenty-five times with Or; accordingly the transition to $\bar{u}$ made rapid advances, so that about the middle of the century there was no longer any very great difference between the Boootian $v$ in $\Pi \dot{v} \theta$ ıos Pūtlios and the Attic ov in $\beta o u \lambda \dot{\eta}$.

## Section 11.

## Later development of the sounds $\mathrm{EH}, \mathrm{O} \Omega$.

At this point I leave the diphthongs, especially $\epsilon \iota$, to turn to the further development of the E and O sounds which remain. It cannot be allowed that Attic $\eta$ in isolated instances became later $\epsilon \iota$, especially in late Attic $\beta a \sigma \iota \lambda \epsilon i{ }^{i}$ as opposed to old Attic $\beta a \sigma \iota \lambda \hat{\eta} s$ : it is rather the case that the latter goes back to $\beta a \sigma \iota \lambda \hat{\eta} \epsilon \varsigma \beta a \sigma \iota \lambda \epsilon$ $\eta s$, the former to $\beta a \sigma \iota \lambda \epsilon \epsilon \epsilon s$, and the resolved forms occur both in the fifth and the fourth century ${ }^{4}$. But in the Dorian and Ionian islands of the Archipelago we meet here and there in post-classical times with forms of writing such as
${ }^{1}$ C.I. A. in. 17. I consider the ov of 'Iov $\lambda \iota \hat{\eta} \tau \alpha \iota$ as spurious, cp. G. Meyer ${ }^{2}$ p. 92 , on iov $\overline{\text { o }}$ os, and C. I. A. II. 546, where in a decree of Iulis ov in every other word is written diphthongally, but IOAIHT $\Omega$ N (occurring three times) is regularly written so, being evidently the survival of an old form of writing.
${ }^{2}$ Plat. Kratyl. 416 в: $\lambda \in ́ \gamma o v \sigma i \quad \gamma \epsilon$ aúcò ( ( ò калòv, "'in pronunciation")
 $\pi \alpha \rho \hat{\eta} \kappa \tau \alpha \iota . \mathrm{Cp} .396 \mathrm{c}$ oúpa⿱ía derived from $\dot{\delta} \rho \hat{\omega} \sigma a \tau \alpha ̀ ~ \alpha ̀ \nu \omega, 402$ в К $\rho o ́ \nu o s$ from $\kappa \rho o u \nu \partial s$, 406 c OINO E from oì $\epsilon \sigma$ Oaı and $\nu 0 \hat{\mathrm{~s}} \mathrm{~s}$, all without any notice of a difference of sound.
${ }^{3}$ C. I. A. Ir. 54. The statistics for Dittenb. Syll. no. 79 (likewise belonging to the year 363/2) give or for real ov 14 times, for spurious (including'Iov $\lambda(\hat{\eta} \tau a \iota) 16 ; 0$ for real ov 4, for unreal 85.
${ }^{4}$ Old Attic XAAKIDEES C. I. $A$. Iv. $27^{a}$; $i \pi \pi \epsilon \eta$ s Kumanud. 13 (beginning of 4th century), to be compared with $i \pi \pi \epsilon ́ \omega s ~ i \pi \pi \epsilon \bar{a} a s$. Late Attic, e.g. Eika $\delta \epsilon \epsilon$ II. 609; also written cícs $^{\prime}$ as ib. $872 \mathrm{Ko} \lambda \lambda \nu \tau \epsilon i \epsilon s$, see Dittenberger, Herm. xvir. 38 : his view is opposed by Wackernagel $K . Z$. xxvir. 267 f. unsuccessfully in my opinion as regards the chief point at issue.
 in the Dorian Peloponnese $\tau \epsilon \rho \rho \epsilon \hat{\imath}, \epsilon i \mu \dot{\lambda} \nu$, $\sigma v \nu \tau \epsilon \lambda \epsilon i \tau a l$ (conjunctive) ${ }^{2}$; which all point to at least a closed E-sound, such as arose at an early period in Keos and Naxos for common Greek $\eta$. For this $\eta \epsilon \iota$ as yet by no means coalcsces with $\iota$, although the phenomenon signifies the progress of the sound in this direction. In Bootia and indeed also in Thessaly the original $\eta$ as in $\pi a \tau \dot{\eta} \rho$ may at the close of the second century b.c. have reached the $\iota$-extremity ${ }^{3}$; hence it would not be wrong to call the itacistic pronunciation of this letter the Bootian. Short $\epsilon$ has cspecially in two cases a tendency to pass into $\epsilon \iota$, firstly before $\sigma$ with following consonants, as in Beotian $\Theta_{\epsilon \iota \sigma \pi \iota \epsilon \hat{\epsilon} \epsilon \varsigma} \Theta_{\epsilon \sigma \pi} \epsilon \epsilon \hat{\epsilon}$,
 far more frequently where followed immediately by vowels:
 $\Lambda \epsilon \omega \boldsymbol{\text { rópov ciautóv, in Attic as early as the fifth and fourth }}$ century ${ }^{5}$. It has been remarked that an $i$ can very easily be
${ }^{1}$ Epikteta's Will Thera C. I. Gr. 2448 (Caner ${ }^{2}$ no. 148) not infrequent; $\dot{\epsilon} \nu \epsilon \bar{i} \sigma \alpha \nu$ and $\bar{\epsilon} \epsilon \epsilon \rho b \sigma \iota a$ often in the Delian insor. Bull. de corr. h. n. 570 (only in these two words and not without exception in them).
${ }^{2}$ Mystery-inscr. of Andania Cauer no. 13 (2nd ed. 47), Dittenb. Syll. 388; Mantineia Le Bas 353 ( $\tau \epsilon \epsilon \epsilon \in \hat{\nu}$ by $\epsilon \tau \dot{\eta} \rho \eta \sigma \epsilon \nu)$; do. $352^{\text {i }} 43, ~ \epsilon l$ for ${ }^{\text {n }}$. Et $\mu \dot{\alpha} \nu$ however appears to be rather a jussum speciale of the language than to rest on a universal principle; for it is found also (as $\epsilon l \mu \dot{\eta} \nu$ ) in the Septuagint and quoted in the Etymol. M. s. v. (Lachmann, N. Test. 1, p. xli). Also $\sigma v \nu \tau \epsilon \lambda \epsilon i \tau a l$ r $\rho \circ \sigma \delta \epsilon i \tau a l$ conjunct. Athens Dittenb. Syll. 337, 11 (Psephism of Demades).

 362 (Lebadeia) N $九 \boldsymbol{\rho} \mu \nu / \omega$ by N $\iota o \mu \epsilon \nu / \omega$; àòıki conjunct. for Bœot. à $\delta \kappa \kappa i$, , Dial. Inselhr. 425 (Lebndeia) $\lambda \epsilon \epsilon \tau \omega \rho \gamma i \mu \epsilon \nu$; 132! II. a" (Thessaly shortly after 190
в.c.) $\mathrm{X} \rho \iota \sigma$ luov for $\mathrm{X} \rho \epsilon \iota \sigma$. an accidental omission of the E .
${ }^{4}$ In Thespiae itself $\theta_{\epsilon} \epsilon \sigma \pi$. is the regular orthography, in the writing of the dialect; likewise Orchom. Bull. de corr. h. iII. 463 in the Bootian part of the document airays $\theta_{\epsilon \iota \sigma \pi}$. and actu. ally (line 91) $\Theta_{\text {eif }}$ tetels tò, in the same
 the other hand in the part composed in the кow $\eta$ both names are written with є.-As to єiँ $\chi \eta \kappa \alpha$ see G. Meyer Gramm. ${ }^{2}$ § 112; tioxov Telos Bull. de corr. h.
 where $\bar{\epsilon} \sigma \tau \dot{\eta} \lambda \eta($ i.e. $\dot{\epsilon} \nu \sigma \tau \dot{\eta} \lambda \eta()$.
${ }^{5}$ C. I. Att. Iv. $373^{99}$, 11. 168, 263, 352, $553,115^{\text {b }}$. Meisterhans 2nd ed. p. 35. In like manner we find on the Ionic inscr. of Zeleia Mitth. d. arch. Inst. vi. 229 (Ditt. 113) eláv and $\dot{c \nu \nu \epsilon}$ la, and I have no doubt, that Nolic $\pi \rho \epsilon \sigma \beta \epsilon l a=\pi \rho \epsilon \sigma \beta \epsilon a$ $\pi \rho \epsilon \sigma \beta \epsilon \omega \tau \eta \nu$ and in general - cios as gen. to ers nssigned by grammarians to the later Ionians and Eolians, nre so to be explained (Meycr- § 14!).

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the subsequent development consisted entirely in the cessation of the qualitative and finally also of the quantitative distinction between $o$ and $\omega$.

The case is not quite the same with $\eta$ and $\epsilon$ : these sounds also are, it is true, frequently confounded by the Papyri ${ }^{1}$, and on the latter as well as on inscriptions $\epsilon$ no less than $\eta$ is used for the $\underline{e}$ arising from $a \iota^{2}$, but in other localities $\eta$ followed the tendency to become $i$, while $\epsilon$ remained stationary or actually moved in the reverse direction. In this period however we must make a very sharp distinction between the cultivated language and that of the people: the transformations in the latter passed by no means at once into the former. For instance, it is certain that $\eta$ preserved the $e$ sound among cultivated speakers up to the fourth century A.D.; for this fact we have the clearest evidence in Greek and Latin authors. Dionysius of Halikarnassus ${ }^{3}$ puts forward in respect of agreeableness of sound the following descending scale of long vowels; $a, \eta$, $\omega, v, \iota$, i.e. he denotes $\iota$ as the least agreeable, $\eta$ the most agreeable after $a$. The description, which he gives of the production of $\eta$ and of $\epsilon$, is unfortunately not of such a kind, that we can with any certainty infer the distinction of an open or closed sound ${ }^{4}$. At a later period the qualitative distinction between the two letters is absolutely denied; this of course must be taken as a general statement and not extended to the distinction between $\underline{e}$ and $e$.
klov. Of course $\omega$ and o of inscriptions also occasionally interchange, but in the early period not by any means frequently.
${ }^{1}$ Pap. Louvre 1 shews the follow. ing: col. 5 mupoci $\delta \ell$ s twice for $-\eta^{\prime} s$.

 Inscr.: M $\eta \lambda \eta \sigma l \pi \pi o u$ and 'E $\mu \mathrm{r} \eta \dot{\delta} 0$, Delos Bull. de corr. h. ir. 341.
${ }^{2}$ See below under al.
${ }^{3}$ Dionys. Halik. $\pi . \sigma v \nu \theta$. p. 75 ff. R.

 $\dot{\eta} \chi o \nu \dot{a} \lambda \lambda$ ' ờк $\ddot{\alpha}^{\nu} \omega$ (as has been before
 $\pi \rho o ̀ s ~ \tau o ̀ \nu ~ o \dot{\nu} \rho a \nu o ́ v)$, каi $\mu \in \tau \rho i \omega s \dot{a} \nu o c \gamma o \mu \notin$ ' $\nu o u$ rô $\sigma \tau o ́ \mu a \tau o s$ (farthest in the case of $\alpha$ ). -p. 77. $\tau \ddot{\omega} \nu \delta \dot{\epsilon} \beta \rho a \chi \epsilon \omega \nu$ óv $\delta \dot{\epsilon} \tau \epsilon \rho \circ \nu$ $\mu \dot{\epsilon} \nu \in \delta \nu \mu \rho \rho \phi o \nu$ (on account of their short-
 Usener Ind. schol. Bonn 1878; the mss. give some tò $\epsilon$ some tò o). סı-

 $\mu \hat{a} \lambda \lambda o \nu$. I think, that it is rather $\epsilon$ which is preferred; for of $\omega$ it is said before, that the $\pi \lambda \eta \gamma \dot{\eta}$ takes place $\pi \epsilon \rho i$
 case of o be $\pi \epsilon \rho i$ tìr ápruplar $\mu \hat{a} \lambda \lambda o \nu$ ?

Scxtus Empiricus (about 200 a.d.) declares, that there are naturally only five vowels, not seven; for if $\breve{a}$ and $\bar{a}$ are to bc reckoned as one letter, this will be not less the case with $\epsilon$ and $\eta, o$ and $\omega$, since $\epsilon$ and $o$ lengthened give $\eta$ and $\omega$, the latter shortened $\epsilon$ and $o^{1}$. In like manner Terentianus Maurus (end of the third century) says: litteram namque $\epsilon$ videmus esse ad $\hat{\eta} \tau a$ proximam, sicut $o$ et $\omega$ videntur esse vicinae sibi: temporum momenta distant,non soni nativitas ${ }^{2}$. Marius Victorinus, Ausonius and Martianus Capella ${ }^{3}$ also in the fourth century bear witness to the universal quality of $\eta$ as $e$; the same may be said of Ulfilas, in whose translation of the Bible $\eta$ is prevailingly represented by Gothic $e$, seldom and then only owing to the fault of the East-Gothic scribes in Italy by $i^{4}$. Isolated examples of confusion of $\eta$ and $\iota$, which have been cited from inscriptions of the period of the Empire or even earlier, have the less weight as opposed to these evidences, inasmuch as such examples in many instances do not bear a critical examination ${ }^{5}$. And even those instances, which do bear such an examination,
${ }^{1}$ Sextus Empir. adv. mathem. p. $625 \mathrm{Bk} .:-\dot{\alpha} \kappa о \lambda о u \theta \dot{\eta} \sigma \epsilon \iota$ каì $\tau \grave{o} \epsilon$ каì $\tau \grave{\partial} \eta$



 a corresponding statement with regard to 0 and $\omega$ ).

## 2 Terent. Maur. v. 450 ff.

${ }^{3}$ Mar. Victorin. Ars gramm. p. 39 Keil: quam (the syllable Ther in Thersandrus) si produxeris-, ut pro $e \eta$ Graeca littera audiatur, quae semper naturalonga est. Anson. p. 202 ed. Bip.: $\hat{\eta} \tau a$ quod Aeolidum (i.e. Graecorum, see Henrichsen p. 145) quodque e valet, hoc Latiare E. Mart. Cap. iII. § 235 : E autem vocalis duarum Graecarum litterarum vim possidet. Nam cum corripitur, $\epsilon$ Graecum est, ut ab hoc hoste; cum producitur, $\dot{\eta} \tau a$ est, ut ab hac die.
${ }^{4}$ Aunisimus 'O»ท́бсцоs, Filippisians $\Phi_{\iota} \lambda \iota \pi \pi \eta \sigma i o u s$. In Koptic also the letter $\boldsymbol{H}$ signifies in the earlier period $e$ and is confused with $\boldsymbol{\epsilon}$; ouly in a later period
with I ; vide Stern's Koptic Gramm. p. 32.

5 Thus IP $\Omega \Omega \mathrm{N}$ is said to stand on the inscr. of Karpathus in Ross 3, no. 264 , as the editor himself makes prominent. If however we look more closely we find that this word stands by itself in a line and is preceded by an empty space, and moreover that there is a serious gap in the sense. I therefore have no doubt that the first half of H has disappeared in this gap. Dit. tenberger Herm. vi. 147 cites C. I. Gr. 2588 (Gortyn) Kuvíj入cos Quintilius,
 6672 (Rome) Ka $\alpha \lambda \dot{\eta} \sigma \tau \rho a \tau o s \dot{\alpha} \nu \epsilon \theta \iota \kappa \epsilon \nu$. He says in general, that such instances become more frequent according to the various localities towards the end of the second, or as in the case of Athens, not till the third century. Meisterhans p. 15 places the transition at Athens $150-250$ a.D. $\Delta \iota \nu a ́ \rho ı a$ appears twice on the inscr. of Gytheion Le Bas $243^{\text {a }}$ (161-169 A.D.), without any other
are with regard to the general statement convincing only for the popular dialect, not for the general pronunciation. +

Incomparably more valuable than a few dozen of such isolated scriptural errors is the fact, that in the Alexandrine mss. of the Bible belonging to the fourth century, the Sinaitic and the Vatican, $\epsilon$ and $a \iota(\underline{e}), \iota$ and $\epsilon \iota(\iota)$ and indeed $v$ and $o \iota$ are not infrequently confused; but not $\eta$ (e) and $\iota$; the pronunciation of these symbols is consequently established beyond a doubt for this period and locality. Moreover in the Psalterium Veronense of the fifth to sixth century, which gives the Greek text in Latin letters, $e$ stands for $\epsilon \eta a \iota, i$ for $\iota \epsilon \iota$ and $y$ for $v$ and $o \iota^{1}$, from which we may infer, that in the West the old pronunciation of the $\eta$ maintained itself for a very long time. In like manner Egyptian documents of the Byzantine period in the signatures written in Latin letters regularly transcribe $\eta$ with $e^{2}$. On other points there ought to be no disagreement as to the pronunciation of the real Byzantines; the followers of Erasmus are wrong in attempting at all to rebut the proofs which their opponents have drawn from Eustathius. However the pronunciation as $e$ seems to have maintained itself to this day in the popular dialect of Trapezus ${ }^{3}$. Very few confusions between $\iota$
interchange of $\eta$ and $\iota$. Bursian, who with regard to $\eta$ is entirely on the side of the Erasmians, gives on p. 185 as the oldest evidence for $\eta=\iota$ Steph.

 фаעє $о \hat{0} \sigma a$ $\sigma \eta \mu a l \nu \epsilon$. It will be found to be an addition of the epitomator Hermolaos, consequently of the date of Justinian. On the numerous Syrian inscr., ranging from the second to the sisth century A.D., communicated by Wetstein Abhandl. d. Berl. Akad. 1863255 ff ., $\epsilon-\iota$, al- $\epsilon$ are very often interchanged, $\eta-\iota$ hardly ever. But the fact, that кai here is commonly written $\kappa \xi$, seldom (no. 118) $\kappa \gamma$, must be explained from the open sound of the $\epsilon$ and the closed sound of $\eta$ already current then. A similar result is given by the inscriptions of Asia Minor
collected by Sterret (drchacol. Instit. of Amer. vol. mir.', к ${ }^{\prime}$ for каi no. 395, an inscr. of Christian period with very corrupt orthography). I remark against G. Meyer Gr. p. 89, that roוбג́ $\mu \in \nu$ о Pap. L. 41 , is not itacistic for $\pi o \imath \eta \sigma \dot{\alpha} \mu$., but a plebeian contraction from no九 $\eta \sigma$.; comp. $\pi \epsilon \pi o l \kappa \epsilon \iota$ and $\pi o i ̂ \sigma a l$ on the leaden tablets of Knidos, Wachsmuth Rh. Mus. xvirir. p. 569 f. The word being much used underwent au especial shortening.
${ }^{1}$ Lachmann Nor.T'st. vol. 1, p. xLr. In a transcript of the Symb. dpostol. belonging to the 9th century $\eta$ is represented sometimes by $e$ sometimes by $i$.

* Wessely Wiencr Stul. viri. 112

${ }^{3}$ Foy Lautsyst. d. gr. Vulyürspr. p. $8 \overline{3}$; Deffinor C. Stud. iv. 286. Cp.
and $\eta$ have perpetuated themselves in our mode of writing， but according to the testimony of inscriptions（каӨ）$\eta \mu \epsilon \rho i \sigma \iota o$ ， $\nu u \kappa \tau \epsilon \rho i \sigma \iota o s$ appear to be correct，a fact which explains away the anomalous use of the $\eta$ after $\rho^{1}$ ．


## Section 12.

## Pronunciation of $\Upsilon$ ．

Of the two remaining vowels，$\iota$ and $v$ ，only the latter demands any description．At the present day it is pronounced like $\iota$ ，except dialectically，where the sound $\ddot{u}$ ，or $\iota o v$ ，is still heard ${ }^{2}$ ；the classical pronunciation is $\ddot{u}$ ，but the original sound $u$ ，and it was with this latter value that the symbol $\mathrm{V}(\Upsilon)$ was taken over by the Italians from the Chalcidians of Kyme．The Chalcidian HVIIV（ $\dot{v} \pi \dot{o}$ ）will accordingly have been pronounced hupu，and the use of Koppa before the nearly allied $v u$ as well as before o on Chalcidian vases appears quite natural：qúquos， $\lambda \dot{y} \dot{q} u \neq o{ }^{3}$ ．This use of Koppa occurs，it is true，in Corinthian inscriptions also，although in Corinth to all appearance the pro－ nunciation was at a very early period the ordinary modified one． At least I do not know，how the forms on the latter vases ${ }^{'} \Upsilon \sigma \mu \eta \nu a=$＇ $\mathrm{I} \sigma \mu \eta{ }^{\prime} \nu \eta, \mathrm{K} \iota a \nu i s$ apparently $=\mathrm{K} v a \nu i \varsigma^{4}$ admit of any other explanation．

It is quite possible however，that the writing $q v$ was con－ tinned into the period when the modification was beginning or even after it had become general．In Euboea the native land of the Chaicidians the place－names $\mathrm{Kumi}=\mathrm{K} \dot{v} \mu \eta$ and $\operatorname{Stura}=\Sigma \tau \dot{v} \rho a$

Appendix．On $\nu \epsilon \rho o ́, \xi \in \rho o ́ s ~ e t c . ~ c p . ~ a b o v e ~$ p．21，n．3，G．Meyer，§ 73.
${ }^{1}$ Kän $\mu \epsilon \rho i \sigma \iota a$ C．I．A．Iv．p． 76
 also has mss．authority（as in Aristoph． Thesm．204）．Cp．$\nu \cup \kappa \tau \epsilon \rho \iota \nu o ́ s ~ \grave{\eta} \mu \epsilon \rho \iota \nu o ́ s$. In Plin．xxxv．11，§ 124 mss ．Bamberg． and Voss．have hemerisios．
${ }^{2}$ Foy p． 86 ；Meyer ${ }^{2} \S 93$ ．Cp．Ap． pendix．
${ }^{3}$ HVIIV Bechtel Inschr．d．ion．Dial． 3 （Kirchh．121）；母ú¢vos $\lambda \dot{\eta} ধ u \theta$ os C．I． Gr．7611，8337；likewise ¢ $\lambda u \tau \omega \dot{\omega} 73 ゝ 1$
（but K $\lambda u \tau \dot{\omega}$ 7459），P $\boldsymbol{\text { lutios }} 7382$ ；that is，the interposition of a consonant does not remove the influence on the K－sound（or on its representative）．Cp． ＇A $\rho$ ¢ú入 $\eta$ s（？）Ròhl no． 520 （Chalc．）and from Doric Magna Græcia do． 513 Quví Gos．Corınth Rohl 7， 47 Gu入oídas， Dial．Inschr． 3123 （3129）¢ú入入apos，
 Rohl $506^{2}$ Qvpa $(\nu a i \omega \nu)$ ．But in Attica Ku ó $\rho \tau \eta s$ side by side with ¢ó $\rho a \xi$ ， Meisterh．${ }^{2}$ p． 22.
${ }^{+}$Dial．Inschr．3130， 3135.
remain to this day. That the $u$-sound was preserved in the neighbouring country of Bœotia, we know from the transliteration with ou, which became usual there after the adoption of the common Greek modification of the Ionic alphabet; this ou was in the course of the fourth century already employed for the short sound also: Пouppìvos, Фáou入入os.'. This is another proof, how little the ancient Grecks troubled themsclves about the differentiation of short and long vowels in script. The popular Lakonian also still possessed the $U$-sound, as is shewn by
 be stated however that on inscriptions and in the literary monuments of this dialect no such form is found ${ }^{3}$; accordingly the cultivated language of the Spartans may have had the ordinary $\ddot{u}$, in support of which the interchange of $v$ and $\iota$ on inscriptions such as T $\iota \nu \delta a \rho i \delta a \iota, ~ ' E \lambda \epsilon v u ́ v \iota a$ ('E $\lambda \epsilon v \sigma i \nu \iota a)^{4}$ may be cited.

In Cyprian and Pamphylian also the sound appears to have been the original one ${ }^{5}$. But in general the $u$ was modified at a very early period in the same way as Latin $u$ in France and northern Italy ${ }^{6}$ : this pronunciation is established for the Attic of the fourth century in particular by the Bœotian manner of writing; for the ov would not have been introduced, if the Athenians had given the same value to $\Upsilon$ as the ancient Bœotians. Moreover if that had been the case, as $\bar{o}$ became nearer and nearer in sound to $u$, a confusion between the symbols $\mathbf{O}$ ( O ) and $\Upsilon$ would have been inevitable. But on Attic and other inscriptions of the fifth and fourth centuries


[^15]ments Alcman's poems come particularly under consideration, since the ou has been introduced into the Bœotian poems of Corinna; the Lakonian in the Lysistruta indeed shews through. out $v$, but the same may be said of the Bootian in the Acharmials.
${ }^{+}$Tub. liöhl $6{ }^{2}$; also Bull. de corr. lull. ini. 365 (Cythera). 'E $\lambda$ єuívia R . 79, 11, cp. 'Eлєuavdio Crete 1;ull. de corr. hell. ini. 2921.8 (name of month).
${ }^{5}$ G. Meyer ${ }^{2}$ p. 105 f .
${ }^{6}$ Diez Cr. p. 85 f.
$\tau \rho i \beta \lambda \iota o \nu$ and $\tau \rho v^{\prime} \beta \lambda \iota o \nu, ~ M o v \nu \iota \chi \iota \omega \nu$ and Mov ${ }^{\prime} \nu \chi \iota \omega \nu$, $\eta^{\prime \prime} \mu \nu \sigma v$ very frequently for $\ddot{\eta}^{\prime} \mu \iota \sigma \nu^{1}$, 'А $\mu \phi \iota \tau \tau \dot{\prime} \nu \epsilon \in$ and ' $\mathrm{A} \mu \phi \iota к і$ iovєs. Added to this the treatment of the diphthong $v \iota$, which at Athens in the fourth century was simplified to $v$ almost without exception, would be perfectly incomprehensible, if the latter had been not $\ddot{u}$ but $u$ : the Bœotians write oviós. But in Athens even the archaic inscriptions shew vís without $\iota$, the old nominative form corresponding to the genitive viéos, and a confusion of sense is created by the coalition of the two $v$ s, which the composer of an inscription reading from right to left has not even avoided in script (H؟ $\Sigma$ ), but which was generally got rid of by the transference of the nominative and accusative to another declension ${ }^{2}$. It would seem to me just as unlikely that huius should have become hus, as that oios should ever become o $\hat{v} s$ in spite of the occasional shortening of the oc. In the next place, if a Greek transliteration like Kvprivios from Quirinius is only possible on the assumption of the modification of the $v$, the same may be said of the $v$ of the Asiatic Ionians of the fifth century, considering the treatment of Persian names such as Vištaspa ' $\Upsilon \sigma \tau a ́ \sigma \pi r \eta s$, Vidarna ' $\Upsilon \delta \alpha ́ \rho \nu \eta s$. That the Thessalian pronunciation was $\ddot{u}$, is shewn by their writing ou instead of the ordinary $\omega$. In the case of the кoı $\eta^{\prime}$ there is no room for doubt; indeed the modified
${ }^{1}$ att. Inschr. Meisterh. ${ }^{2}$ p. 22 ; even in the tribute lists of the fifth century $\mathrm{K} \iota \nu \delta \nu \hat{\eta} s$ and $\mathrm{K} \nu \nu \delta u \hat{\eta} s$ are interchanged. B $\iota \beta \lambda_{i o \nu}$ C. I. A. II. $1^{\mathrm{b}}$; $\beta i \beta \lambda$ os Mitt. d. arch. Inst. vir. p. 368, of the year 346. The writing with $v$ has no evidence from inscriptions earlier than the first century b.c. but nevertheless appears to be the original (Birt Buchwesen p. 12). Quite analogous to $\beta \iota \beta \lambda i o \nu$ is $\tau \rho i \beta \lambda \iota o \nu$ for $\tau \rho u ́ \beta \lambda \iota o \nu ~ D e l o s ~ 364$ b.c. (Bull. de corr. hell. x. 461, l. 16, 23). Moupux. first C. I. A. II. 247 (306 в.c.); $\ddot{\eta} \mu \nu \sigma v$ ㅍ. $17 \mathrm{~A}, 45$ ( $378 / 7$ в.c.) and in all later Attic examples; further, Bull. de corr. hell. ir. 580 (Delos), Pap. Louvre 1, col. 4 and in general here without exception; but in the more correct documents no. 22 and Pap.

Taur. 1, ó "̈ $\mu \tau \sigma v$. In ' $A \mu \phi$. the $v$ appears first 410 в.c. (Bull. de corr. hell. viir. 283). On the inscr. of Halicarnassus B ull. de corr. hell. iv. 295 (circ. 400) $\Sigma \iota \delta u ́ \lambda \eta \mu / s$ and $\Sigma v \delta u ́ \lambda \eta \mu / s$; the stone of Sigeion Rohl 492 ( 6 th cent.) इuкє. $\epsilon \hat{v} \sigma \iota \Sigma \iota \gamma \epsilon v \epsilon \hat{u} \sigma \iota \Sigma \iota \gamma \epsilon \iota \hat{\epsilon}$. Examples from Delian insor. (circ. 180 b.c.) Homolle Bull. de corr. hell. vi. 114 (кu入úqдıo
 assimilation like $\left.\ddot{\eta}^{\prime} \mu \nu \sigma v\right)$. $\Delta v \nu \delta \nu \mu \epsilon ́ \nu[\eta \iota$ Artake Bull. de corr. hell. xir. 108. Megarian aiбı $\mu \nu$ áras, Bechtel n. on Dial. Inschr. 3016.
${ }^{2} \mathrm{H} \Upsilon \Sigma$ C. I. A. IV. $373^{94}$; Hイฯ scanned as one syllable do. i. 398, as two syllables rv. $373^{100}(-v)$. Cp. $\S 14$ below.
pronunciation is proved even in the case of the later Bootian, only there it takes a different form which coincides with the present English representation of French $u$. That is to say an $i$ is prefixed, and there arises an improper diphthong, which so far as the writing is concerned was in Greek actually a triphthong, capable of being scanned either short or long: Пoдıov́бт $\frac{1}{}$ a
 constant, and is generally only found after $\delta \tau \theta \nu \lambda^{1}$. A similar development of sound has taken place also in popular dialects of modern Greck, for instance in that of Trapezus, and in the descendant of the ancient Lakonian, the Tsakonian, from the latter of which are cited 入ıои́ко 入úкоৎ, кıоирє́ тиро́s, vıои́та $\nu \dot{v} \xi$ and others ${ }^{2}$. In this case the modification, which is strange to the ancient dialect and even in the modern has by no means become general, seems to have established itself in a manner analogous to that in Bœotia; but in Trapezuntine and in the other localities, where a similar phenomenon is found ${ }^{3}$, the transition may have been similar to that in English, that is yu may have appeared in the place of a $\ddot{u}$ which was disappearing. In ordinary Greek however the $\ddot{u}$ has maintained itself for a very long time, not only through the Roman period, where the Latin representation with $u$ and then with $y$ is in evidence against its identity with $i$, but also on into the Byzantine era.

For long after the extinction of the diphthongs and the transition of $\eta$ to $\iota, v$ and $o \iota$ (which by that time coincided with $v$ in sound) kept themselves distinct from $\iota \eta \epsilon \iota$, even the most uneducated masons never confusing them. Accordingly in Suidas' Lexicon, where $\epsilon \iota \eta \iota$ stand together after $Z$ and before I, o $o$ and $v$ are put by themselves in the alphabetical position of the latter; at that time every one knew by the light of nature, that oiкos and ípi's were not to be looked for under $\iota$ or $\eta^{4}$.

[^16]vonic the borrowed words, kyumina ки́ $\mu \nu \nu o \nu$, myuro $\mu \dot{\rho} \rho о \nu$, zmyurna $\sigma \mu u ́ \rho \nu a$.

+ This is not contradicted by the fact, that confusion between $\eta$-oc-vetc. appears occasionally in a l'apyrus of a much older date, see l'sichari Liec. crit. 1888,381 . For the Byzantine period, where we have such abund-


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$\omega \dot{\rho} \rho \iota \pi i \delta \eta=\dot{\omega} \mathrm{E} \dot{v} \rho \iota \pi i \delta \eta)$, is more frequent in Ionic and Doric, but even here is almost confined to crasis: éeutoû, wutós. Now we tind on an Ionic inscription $\dot{\epsilon} o u \tau \hat{\omega} \nu^{1}$, with shortening and at the same time also approximation of the first sound to the second ( $(\underline{o} v$ instcad of $\underline{o} v)$; кои́ = каi oú also may be ascribed to this shortening, since $\kappa \omega \dot{v}$ would have been the regular crasis and is actually recorded in Sappho and Epicharmus ${ }^{2}$. In the middle of the fourth century the $\Lambda$ thenians retained $\eta v$ in the augments of verbs with initial $\epsilon v$, and it is therefore rightly replaced in texts; at a later period these verbs were augmentless, that is $\eta v \underline{\bar{e}} u$ had passed into $\stackrel{e}{e} u^{3}$. This also may be regarded as an accommodation of the first element to the second, in so far as $e$ lies farther than $\underline{e}$ from the original sound $a$, although not in the direction of $u$ but of $i$. $\quad \eta v$ maintained itself as augment of $a v$, chiefly perhaps owing to the Grammarians, if an inference may be drawn from the augmenting of $a \iota$ to $\epsilon \iota$, to be mentioned immediately, and from $\epsilon \dot{u} \chi \circ v{ }^{\prime} \mu \eta \nu$ (from aù $\chi \epsilon ́ \omega$ ) $\epsilon \dot{\jmath} \xi \eta \sigma a$ (from $a \nu \xi \dot{\prime} \nu \omega)$ of later inscriptions ${ }^{4}$.

Far more important in the language are the corresponding diphthongs with $\iota$, in which the other method also, that of simplification, is employed more vigorously. We have an instance of this at a very early period in the nominative of feminines in $-\omega^{\prime}$, originally $-\omega^{\prime} \iota$, as is shewn by the testimony of the Grammarians from old manuscripts and by a few inscriptional examples; as a general rule on quite old vases and stones we find only $-o(\omega)^{5}$. The next instance to be produced under this

[^17]Köhler C. I. A. ir. $57^{\text {b }}$ (b.c. 362/1), but only owing to an error, since the stone, as Riemann assures us, has Hr. On the other hand we have c $\dot{v}$ $\epsilon \rho \gamma \epsilon \tau \eta \kappa \epsilon$ and $\epsilon \dot{\epsilon} \epsilon \rho \gamma \epsilon \tau \dot{\eta} \kappa \alpha \sigma \iota$, id. 271 aud 283 (end of the fourth century).
${ }^{4}$ Kaibel Epigr, no. 192 (Thera, in Roman period, in epic dialect); also v. $3 \operatorname{ERX} \Omega$ is certainly to be emended
 $\epsilon \pi \epsilon^{\prime} \check{\zeta} \eta \sigma a$ in (rreek text of Monum. Ancyranum col. 1, 8; 14, 4.
" Meyer" p. 315. In Röhl's Inscr. Gr. ant. I find only three instunces of ı: no. 415, 433 (Melos), 558 (Akrai
head is the $-\eta \sigma \iota-a \sigma \iota$ of early Attic inscriptions by the side of $-\eta \iota \sigma \iota-a \iota \sigma \iota($ i.e. $\bar{a} \iota \sigma \iota)$ in the dative of the first declension: this $-\bar{a} \iota \sigma \iota$ $-a \sigma \iota$ occurs only after $\iota$ or $\rho$, while the form -a $\iota$ which appears subsequently following all sounds alike has the $a$ short ${ }^{1}$. The Dorians, Bœotians, etc. had -aıs already in the earliest period; the ancient Bootians having also $\breve{a} \iota$ in the dative singular, as we may gather from the analogy of their oc in the dative of the second declension ; the same is true of the Arcadians and Eleans. In the case of these races indeed the diphthongs $\bar{a} \iota \omega \iota$
 Grammarians as a Bœotian form². Or again, they kept the

 like manner Eipovíסas and $\pi a \tau \rho o v \epsilon ́ a \nu^{3}$, where no one will assume diphthongs ove and ove; in the other cases this dialect rejects the $\iota$ tolerably early; $\tau \hat{a}$ for $\tau \hat{\iota} \iota$, $\tau \hat{v}$ for $\tau \hat{\omega} \iota^{4}$. The Lesbians also as early as the fourth century begin to dispense with the $\iota$ of the dative ${ }^{5}$. Conversely the Eubœan and Oropian Ionic of the fourth century weakened final $\omega \iota$ and $\eta \iota$ to oc and $\epsilon \iota$, reducing internal $\eta \iota$ before a vowel to the simple sound: iєp $\hat{\eta} \nu \nu^{6}$. In the
a colony of Syracuse). But the Cor. inthian vases (Dial. Inschr. 3130, 3137, $3143,3146,3148,3152,3156)$ furnish 12 examples of OI and none of 0 . Conversely the vases in the Chalcidian alphabet (Kirch. ${ }^{4}$ 124) in eight examples of such names have only one with $\iota$ ( $\Xi \alpha \nu \theta \dot{\omega} \iota$ ), the Attic vases not one (Meisterh. ${ }^{2}$ p. 109).
${ }^{1}$ Cauer Curt. Stud. viil. 403 ff. ; Meisterhans p. 94-5. I may remark that $\delta \rho a \chi \mu a i ̂ \sigma \iota$ C. I. A. I. 48 is by no means certain, since the remainder of the line after $\Sigma \mathrm{I}$ is wanting. But $\mu \nu \rho \iota \eta \sigma \iota$ C. I. A. iv. $53^{\mathrm{a}}, 20$ ( 418 B.c.) is an
 17. Also Ionic $\delta \epsilon \sigma \pi o ́ \nu \eta \sigma \iota \nu$ Röhl 501 ; but elsewhere - $\eta \iota \sigma \iota$.
${ }^{2}$ Ahrens D. A. 193 f. Meister Gr. Dial. I. 249.
${ }^{3}$ Dial. Inschr. 326, 4; ini. 50; iv. 9; Eipovíalos 345, 86 f. With Bocot. matpoios compare Thessal. K $\epsilon \rho \delta o i o v$, Ahrens, p. 221.

4 With the article still earlier than elsewhere: Rỏhl, no. 327 тádpodíą $\tau \hat{a} \Pi \epsilon \iota \theta \circ \hat{\imath}$ (Dial. Inschr. 325).
${ }^{5}$ Ahrens D. A. p. 99 ; Meister 87 ff. Still earlier in the case of the article: Röhl, no. 503 TO for $\tau \hat{\omega} \iota$ twice. Likewise in the dat. plur. of the article roîs rais, in other cases -oו $\sigma$, -aloı. 'Howiסas Dial. Inschr. 281 a, 37; 262 ; 'Hooida Assos Arch. Inst. of America I. p. 75.
${ }^{6}$ Bechtel Inschi. d. ion. Dial. p. 9, 13 (Inscr. of Eretria no. 15, Olynthus no. 8, Oropus 18). 'I $\epsilon \rho \hat{\eta} o \nu$ Orop. $18,33,36$. Bechtel would assume quantitative metathesis, as in the case
case of the Athenians on the other hand $\omega \iota$ and $a \iota$ hold their ground almost cntirely in the classical and also in the period immediately following; with $\lambda \hat{\omega} o \nu$ and $\sigma \omega \hat{\omega}$, i.e. no doubt $\sigma \omega \omega \hat{\omega}$ from $\sigma \omega i \zeta \omega$ as $\nu o \mu \omega \hat{\omega}$ from $\nu o \mu i \zeta \omega^{1}$, we must compare the numerous instances where $a \iota$ and $o \iota$ lose their $\iota$ before a vowel; $o \iota$ for $\omega \iota$ is hardly more frequent than the converse $\omega \iota$ for $o \iota^{2}$. The Asiatic Ionians distinguish correctly the conjunctives $\lambda \dot{a} \beta \omega \iota \sigma \iota \nu$ (Aorist II. with long thematic vowel) and $\pi \rho \dot{\eta} \xi \circ \iota \sigma \iota \nu$ (Aorist I. with short) ${ }^{3}$; exception might be taken to коivoтi $\delta \eta$ s on the same Chian inscription, since кai o九- must by rights give $\kappa \omega ่ \iota$; on the other hand тоіко́тє $\delta o \nu$ on the same is correct, as $o+o \iota$ cannot give $\overline{\underline{o}} \iota^{4}$. The case stands otherwise however with HI both for Attic and the other dialects. Dorian inscriptions shew very early for $\eta \iota$, in the conjunctive for example, sometimes $\eta$ (E) sometimes $\epsilon \iota^{5}$; in Bœotia $\epsilon \iota$ is indistinguishably confounded with $\eta$ and $\eta \iota$; on Ionic inscriptions the dropping of the $\iota$ in the dative, and the use of $\epsilon \iota$ in the
of $\epsilon \omega$ from $\eta 0$ : $\eta \bar{\iota}$ to $\epsilon \bar{\iota}$, and then to $\epsilon$. In any case in this dialect it is impossible to consider the oc to have been an original locative, as many do in the case of Bœotian etc. (Eretria ' $Б \phi \eta \mu$. 1888, 83 ff. 1. 180 с гOINAP$\Gamma О[\Upsilon]$, i.e. $\left.\Sigma_{\text {oıvá́tou }}=\Sigma \omega \iota \nu . ?\right)$.
${ }^{1}$ C. I. A. II. 162 ; 12 ${ }^{\text {b }}, 7$. (Others, as Cauer, p. 416 ff . and G. Meyer ${ }^{2}$, p. 470, take $\sigma \omega \omega$ as present form with future sense; cp. $\sigma \hat{\omega} o \nu, \theta \omega a$, Meisterhans p. 52.)
${ }^{2} \tau 0 \hat{\imath}$ бй $\mu \circ \iota$, C. I. A. II. 277 (T $\Omega \mathrm{I}$ -
 ool tparoidois by side of six instances of $\omega t{ }^{\prime} E \phi$. $\dot{\alpha} \rho \chi$. 1884, 69 ff. (in the same are two instances of ofor ov; $\epsilon$ alvays for $\eta \iota$ ) ; к $\omega \mu$ ot $\delta(\alpha$, , Kaihel no. 38 (ivth Century); conversely olкoбl$\tau \omega /$, C. I. A. II. $834^{\mathrm{b}}$; II. 24 (b.c.
 Meisterh. p. 52) 258 (b.c. 304), wivoхó 403 (inrd Century) ; $\sigma \tau \epsilon \phi a \nu \omega \iota \not$ 3rd sing. ind., Bull. de corr. hell. irr. 120 (rvth

 $238 \mathrm{~T} \iota \mu \alpha \sigma \iota \theta \notin \circ$. 254 'Apıбтóvol. There are however in this inscription other instances of confusion between 0 and $\Omega$, as $\Lambda v \sigma l o v, ~ a l o n g s i d e ~ \Lambda v o i \omega \nu$.
${ }^{3}$ Röhl, no. 381 (Bechtel, no. 174); the correct explanation for the alteration of $\omega \iota, \eta \iota$ and $o l, \epsilon \iota$ in the conj. on inscrip. of Asiatic Ionia (and Crete) was given by Schulze, Herm. xx. 491.
${ }^{4}$ The modes of writing such as $\dot{\varphi} \nu 0 \chi$ bos and $\stackrel{\Psi}{\Psi} \nu o s$, Eur. Cycl. 560, I cannot consider correct. Comp. $\mu / \sigma$ $\theta \delta o l, \mu l \sigma \theta \delta \epsilon \iota=\mu l \sigma \theta 0 \hat{\imath}, \delta \iota \pi \lambda \delta_{0 l}=\delta l \pi \lambda o \hat{c}$.
${ }^{5}$ Ahrens D. D. 293 ff .; G. Meyer ${ }^{2}$ p. 86. On the Xuthias inscription
 occurs twice by AMO日ANEI. On the pillar of Damonon (Sparta) R. 78, IIEIOKA. The inscription of Gortyn however, which always has ${ }^{\text {( in the }}$ subjunct., has OIIE, so that these adverbs must be placed in a separate category.
conjunctive, is strikingly frequent ${ }^{1}$; at Athens from about 376 b.C., although the usage of Ionic H was in other respects correct, EI (in isolated instances even E) was often written, and this orthography at the close of the fourth century actually prevails for every HI, e.g. $\tau \epsilon \hat{\imath}$ ßou入єî, Aìfi's for Aìn's, $\dot{\epsilon} \pi \epsilon \epsilon \nu \epsilon{ }^{\prime} \kappa a \sigma \iota$, $\epsilon i \rho \epsilon \in \theta \eta \sigma a \nu^{2}$. It occurs also on inscriptions and Papyri ${ }^{3}$ in the Hellenistic period, and that it existed in manuscripts, is shewn by isolated remnants on the Herculanean rolls, such as $\grave{\epsilon} \kappa i \nu \epsilon \iota$ for $\grave{\epsilon} \kappa \epsilon i \nu \eta \iota^{4}$. But with some exceptions, such as the 2 nd pers. of the pres. mid. where an endeavour was made to distinguish indicative and conjunctive by $-\epsilon \iota$ and $-\eta \iota$, and words such as $\lambda \epsilon \iota \tau o v \rho \gamma_{i} a^{\prime}$ for $\lambda \eta \iota \tau o v \rho \gamma^{\prime} a^{5}$, it was done away with by the Grammarians. In fact this is a domain, where the current rules of orthographic distinction may here and there be challenged. For instance we write the feminine derivatives of words in $-\epsilon v s$ in Attic with - $\eta^{\prime} \mathrm{s}$ or (which is certainly wrong) with $-\eta i$ s, but the corresponding masculine forms (patronymics) with - $\epsilon i \delta \eta$; are we then, in an inscriptional instance like 'A $\rho \iota \sigma \tau \eta i \delta \eta \varsigma^{6}$, to assume that $\eta \iota$ is wrongly sub-
${ }^{1}$ Chios R. 382 aú $\hat{\eta}$; other examples of $\iota$ omitted in Röhl ib., Bechtel, Insch $r$. d. ion. Dial. p. 72.
${ }^{2}$ Since EI for HI is commoner the later the period, we cannot consider it a remnant of the pre-Euclidian orthography. It is rightly explained by Ahrens, l. c.; there is an accurate enumeration in Meisterhans, p. 30; complete statistics, Hecht, Orthog.dial. Forsch. in. Simple E, C. I. A. II. 61 (after 357) $\chi \alpha \lambda \kappa о \not$ भ́кє and $\alpha \cup \boldsymbol{\tau} \hat{\epsilon}$ (also ${ }_{\epsilon} \neq \chi \epsilon$ for ${ }^{\epsilon} € \chi \epsilon \iota$ ?), in other instances in the same $\epsilon \iota$ and $\eta \iota$. If we suppose $\eta \iota=\epsilon \iota$, the writing E is analogous to o for real ou, which also occurs at that period. (E, i.e. $\hat{\eta}$ where, ancient Attic, C. I. A. Iv. $53^{\text {a }}, 35$; the inscr. is in other respects also not very accurate.)
${ }^{3}$ Inscr. of Delos, Bull. de corr. h. iI. 331 always $\epsilon \iota$, ib. $570 \mathrm{ff} . \epsilon \iota$ and $\eta \iota$ without any rule; Samos ib. v. 482, 'E $\rho \mu \epsilon \imath$ ib. 307, Delphi $\epsilon i \rho \epsilon \theta \eta \sigma \alpha \nu$.

Papyr. Louvre 22 (2nd cent. b.c.) $\mathrm{M} \epsilon \nu \nu i \delta \epsilon \iota \tau \hat{\omega} \iota \dot{\epsilon} \pi \iota \mu \epsilon \lambda \eta \tau \epsilon \hat{\imath}, 15 \dot{\epsilon} \pi \iota \mu \epsilon \lambda \eta \tau \epsilon \hat{\imath}$ $\kappa \alpha \theta \epsilon \iota \rho \eta \mu \epsilon \nu{ }^{\prime}{ }^{\text {' }} \mathrm{H} \rho а к \lambda \epsilon \ell \delta \epsilon \iota$; similarly in Pap. Taur. 1. II. All these documents are in other respects very correct.
${ }^{4}$ Gomperz, Wiener Akad. vol. 83 p. 91, also in Philod. $\pi$. өavátov (Scott Fragm. Herc. p. xxxvii s., ed. Mekler, col. 36, 1; 37, 13) ; cf. 3.
${ }^{5}$ On $\lambda_{\eta}$ rovo $\gamma$ ia (written everywhere in Attica as late as the 4 th century) Foucart, Rev. de Philol. n. s. i. 37 ; Meisterhans ${ }^{2}$, p. 30. This $\epsilon \iota$ remained in the language also in Aireis etc., where inscriptions of the Roman period give Airis, Meisterhans ${ }^{2}$ p. 30. In these cases the $\eta$ had not the support of any cognate form as it had in $\tau \iota \mu \hat{\eta}$ (cp. $\tau \iota \mu \dot{\eta}, \tau \iota \mu \hat{\eta} s, \tau \iota \mu \dot{\eta} \nu)$. The grammarians introduced the poetical form Airnis.
${ }^{6}$ Example given Meisterb. ed. 2
stituted for $\epsilon \ell$, or shall we consider ' $\Lambda \rho \iota \sigma \tau \eta i \delta \eta \rho$ and Airnis alike the correct writings? We have also 'A $\rho \chi \epsilon \nu \eta \eta^{\prime} \delta \eta \rho$, 'A $\rho \rho \epsilon \nu \eta \eta^{\prime} \delta \eta \rho$,

 Since the $-\eta \iota$ in the third decl. appears considerably earlier than the $-\epsilon \iota$ in the first we cannot regard the former as due to this confusion of $\eta \iota$ with $\epsilon \iota$. Still inscriptions of the fourth century do occur, which correctly distinguish in these cases,
 so $\mathrm{on}^{3}$; consequently if $\pi \sigma^{\prime} \lambda \eta \iota$ is original, the transition to $\pi \dot{o} \lambda \epsilon \iota$ under the influence of the other cases (?) ( $\pi \dot{\delta} \lambda \epsilon \omega \varsigma$, $\pi \dot{o} \lambda \epsilon \iota, \pi{ }^{\prime} \lambda_{\epsilon \epsilon \sigma \iota}$ ) may yet have taken place at an earlier time and have been more general than that of $\tau \hat{\eta} c$ to $\tau \epsilon \hat{\imath}$. According to what has been said there has taken place in this transition an approximation of the first element to the second, $e i$ for $\underline{e} i$, simultaneously with a shortening; in the case of the Dorians, with whom $-\eta \iota$ was in general far more rare of occurrence, it was the more readily done away with, and indeed with the result that for $\underline{e} i$ sometimes $\underline{\underline{e}}$ sometimes $\underset{e}{e} i$ was heard. Arcadian, which also does not know $\boldsymbol{a} \underset{\sim}{\omega}$, always shews $\eta$ in the conjunctive. With the close however of the third century b. c. came the period, in which the $\iota$ of the diphthongs $\bar{a} \iota \eta \iota \omega \iota$ began to disappear altogether from the language. Private documents of the second century, such as the emancipation inscriptions at Delphi and the ordinary sort of Papyri, shew more or less
 pl.) with improper $\iota$, ' $巨 \rho v \mu a ́ v \delta \rho a$ as dat., $\epsilon \phi^{\prime} \dot{\omega} \tau \epsilon, \epsilon \bar{\epsilon} \nu \kappa a \tau o \chi \hat{\eta}$
p. 29, n. 179 ; ср. Bull. de corr. hell. 1888, 136.
${ }^{1}$ Meisterh. p. 29, n. 180-182.
$\because \gamma \rho a \mu \mu a \tau \hat{\eta} \iota$, C. I. A. II. 90 (about
 в.c.) ; ir. $25,35,42$ (all before 376 ), 50 (372); last example according to Meist. p. 108, n. 991, 162 a, 12, b.c. 335. Add Bull. de corr. liell. xir. 139 (378/7), $142,153 \mathrm{ff} ., \mathrm{l} .30$ (393), 161 f. (399). $\pi \delta \lambda \eta \iota$, Iasos Bull. iv. $497=$ Bechtel, n. 101,3 (4th century) ;-к] ${ }^{\prime}{ }^{\prime} \tau \eta!$ C. I. A.


द̈тєє C. I. d. і. 1059 (321 в.c.), 'А $\pi$ о入-
 Meisterh. ${ }^{2}$ p. 31. Meisterh. considers
 is only one instance of it, while there are many of $\gamma \rho a \mu \mu a \tau \epsilon i$ and much earlier.
${ }^{3}$ Bull. de corr. h. III. 474. Attic documents of 369 and 363 deposited at Delos (HI in dat. 1 st decl. and in conj. in 11 instances; $\dot{\boldsymbol{a}} \kappa \rho о \pi \delta \lambda$ ся twice; 'Apiotelins once).
without the proper $\iota^{1}$. Among these irregularities we still find the earlier $\epsilon \iota$ and $o \iota$ also, for instance at Delphi once in the same line $\tau \hat{\omega}$ and oi i.e. $\boldsymbol{\omega}^{2} \iota^{2}$. Similar uncertainty prevails e.g. on the Cretan inscriptions in Teos, which likewise date from the beginning of the second century ${ }^{3}$. Still it is possible that the cultivated pronunciation of this period still maintained the $\iota$, although for the common people it was a mute letter: at least on carefully composed inscriptions and Papyri there is as yet no uncertainty in its use, except that it is added (and indeed consistently) to the optative, as for instance $\epsilon^{\prime \prime} \eta \iota, \theta \epsilon i \eta \iota^{\prime}{ }^{4}$. It is certainly allowable, although some caution is necessary, to take good documents of the second century as evidence in doubtful cases; on the other hand hardly those of the first, and certainly not those of the Empire. For it actually came to pass, that even the educated no longer knew, except perhaps in the case of the dative, where the mute letter ought to stand and where not, and that the Grammarians disputed among themselves and tried to ascertain scientifically, as for instance
${ }^{1}$ See the Delphian documents published by Wescher-Foucart and similar examples in Bull. de corr. h. v. 397 ff., from the latter of which I have taken my examples. Pap. Lourre 63 (b.c. 165), col. 7 тaủ cál; col. 3 入ó $\gamma \omega \tau \tau \nu i$, 4 §uт $\eta \rho a \hat{\prime}, 6 \beta \rho a \beta \in v \theta \hat{\eta}$ and $\tau u ́ \chi \eta$ conj., no. 22 (tolerably correct) $̇ \downarrow$ катох $\hat{\eta}$
 draught of the foregoing) the 1 commonly omitted.

2 Bull. 1. c. p. 430; Wescher-Foucart no. 304, т $\rho 6 \pi$ oc oî ка $\theta \epsilon \lambda \eta$.
${ }^{3}$ Cauer $^{2}$ no. 122 ff. The Delian inscr. Bull. de corr. h. vi. 6 ff. has $\overline{a c}$ and $\omega \iota$ correct, but never $\eta \iota$, instead either $\eta$ or $\epsilon$. Cp. the letters of the kings of Pergamos (middle of 2nd cent.), Domaszewski $A$ rch. Epigr. Mitth. a. Oest. 1884, 95; Wilamowitz Lect. Epigr. [1885], p. $16: \bar{\alpha} \iota, \omega \iota$ regular, $\eta \iota$ with errors. As further examples I cite: Bull. mir. 290 (Cret. document at Delos; end of 2nd cent.) entire con-
fusion. iv. 50 (Abdera) $Ө \rho a \kappa \omega ̂ \nu, \grave{\eta} \tau \epsilon i \neq 0$; in other respects correct. Ib. 164 (Teos, middle of the 2nd cent.) $\Sigma a \mu 0$ $\theta \rho a \kappa \iota a \sigma \tau a i$. v. 42 (Phokis, after 181 в.c.) = Dial. Inschr. 1539, Dittenberger Syllabus 294, $\tau \hat{a}, \tau \hat{\omega}$ etc.
${ }^{4}$ Papyr. 24 (Dialectics) is correct in this respect, also 1 (Astronomy), where in other matters there are very bad orthographic blunders; it must be admitted however that it has, col.
 ther, 15 (legal verdict); Pap. Taur. 1 (do.), but $\dot{\eta} \rho \epsilon i \tau o ~ c o l . ~ 3 ; 7$ and 8 $\theta \in i ́ \eta$; 9 ein $\eta$. This mode of writing occurs also on the Tean inscr. Bull. de corr. h. rv. 113, where $\epsilon^{\prime \prime} \eta$ a appears line 50 and 65. The inscription shews Ionic forms but the style of the writing belongs to the 2 nd cent. On another Tean inscr. Le Bas v. 86 (Rescript of King Antigonus, between 306 and 301), the constant writing $\lambda \eta$ rovpreiv is noteworthy.
by comparison of dialects, the rights of $\iota \dot{a} \nu \epsilon \kappa \phi \dot{\omega} \nu \eta \tau o \nu$. In consequence of this there is at the present time much doubt on the subject, though the investigations of Usener especially have done us great service ${ }^{1}$. In ancient times indeed many omitted the $\iota$ on principle as useless, as Strabo says, "many throw overboard the entire custom, as having no reason grounded on Nature ${ }^{2}$." The Latin transliterations also are instructive for the distinction of the pronunciation of the late period from the earlier. In words which were taken over at an early age $\omega \iota$ is treated just as $o \iota, \bar{a} \iota$ with $\iota \dot{\nu} \nu \epsilon \kappa \phi \omega \nu \eta \tau o \nu$ just
 tragoedia; Illraex ${ }^{3}$. At a later period on the contrary the $\iota$ was not regarded : ode, melodia, Thracia. The Musicians however maintained against the Grammarians, that the letter was really pronounced, and only drowned by the preceding long vowel ${ }^{4}$, and to this pcrhaps may be ascribed the fact, that Dionysius of Halikarnassus on the subject of the Pindaric $\boldsymbol{a} \boldsymbol{\gamma} \lambda$ aía i $\delta \epsilon \tau \epsilon$ speaks of the $\iota$, which in pronunciation precedes the $\iota$ of ${ }^{i} \delta \epsilon \tau \epsilon \epsilon^{5}$. For the rest the mute $\iota$ was written, so far as it was written, after as well as before in the same line with the rest of the letters, and it is not until manuscripts of about the seventh century that we meet with $\iota$ written a little higher or a little lower ( $a^{a} a_{l}$ ), not until those of the twelfth century with $\iota$ subscriptum ${ }^{6}$.

[^18]ruption of that with $a e$ ).
${ }^{4}$ Bekk. Anecl. iII. 1186 : ol $\mu$ оибккоі

 $\mu \epsilon \gamma \epsilon \theta o s \tau \hat{\omega} \nu \mu a \kappa \rho \omega \hat{\nu} \phi \omega \nu \eta \ell \nu \tau \omega \nu$.
${ }^{5}$ Dionys. $\pi$. $\sigma v \nu \theta$. p. 162 R. rapá-


 ouva入єlpetal tafra $\dot{d} \lambda \lambda \dot{j} \lambda$ ous (the $\iota$ with
 रluetal ктé.
${ }^{6}$ Gardthausen Gr. Palcogr. S. 193, 203. I found the a'al $\omega^{\prime} \omega_{t}$ in a Papyrus ms. of about the 7 th cent., see Ztschr. f. Eyyypt. Spr. 1880, p. 35.

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again written before a vowel, although not always ${ }^{1}$, and has consequently been again introduced into the Attic authors. As the Grammarians reckon it among the diphthongs катà $\delta \iota \epsilon \in \xi o \delta o \nu$, they in any case pronounced it as $\ddot{u}$. And this pronunciation must be assumed for ancient times in all places where $v$ had become $\ddot{u}$ uniformly ${ }^{2}$. For the simplification of $\epsilon \iota$ at oc before a vowel it is sufficient to mention a few facts. Thomas Magister
 Philemon ${ }^{3}$; we ourselves write $\pi \lambda \epsilon \hat{\epsilon} \circ \nu \tau \dot{\epsilon} \lambda \epsilon o s$; Attic inscriptions


 Doric $\dot{\alpha} \sigma \dot{\sigma} \lambda \epsilon a=\dot{\sigma} \sigma \dot{a} \lambda \epsilon \iota a, \dot{\eta} \mu i \sigma \epsilon a^{6}$. The same holds good with $a \iota$ : Lesbian has "Адкао 'Адкаios, Thessalian Г $\epsilon \nu \nu a ́ o s$, in the Ionic Styra in Eubœa we find Ai $\sigma \chi \rho$ áos $^{\Sigma} \Sigma_{\pi o v \delta \alpha^{\prime} \varsigma^{\eta} \text {; old Attic 'A } \theta \eta \nu a i ́ a ~}^{\text {a }}$
 Пєє $\rho a \iota \epsilon u ́ s$ shew the al shortened in Attic poets ${ }^{9}$, which comes to the same thing as the inscriptional writings II $\epsilon$ 位és K $v \delta a \theta \eta \nu a \epsilon u{ }^{\prime}$ etc. ${ }^{10}$ The case is different with $\bar{\epsilon} \lambda \dot{a} a, \kappa \dot{a} \omega, \kappa \lambda \dot{a} \omega$ etc. Here perhaps $a$ was original, which was simplified to $\bar{a}$, as $\omega \iota$ in $\lambda \hat{\omega} \nu \nu$ to $\omega$, or again the $\bar{a}$ may have been a mistake of the grammarians for $\boldsymbol{a l}$, just as the supposed Attic $\boldsymbol{i} \in \boldsymbol{\tau} \boldsymbol{o}$,, which has no support from inscriptions, all of them shewing
> ${ }^{1}$ Pap. L. 61, col. $4 \pi \rho о є \lambda \eta \lambda \nu \theta v \iota \omega \hat{\omega}$; 63, $2 \gamma \epsilon \gamma \circ \nu v \iota \omega \nu$. On Attic inscriptions also $u$ appears again during and even more after the 2 nd century b.c., and in the period of the Empire this is much more frequent than the simple $v$, Meisterhans, p. 47. Cp. also $\dot{v} \epsilon \iota \delta \nu$ (Asia Minor) Sterret $A \mathrm{rch}$. Inst. of America ini. p. 331, ن́yєเồ (vioû) Assos do. I. p. 85 (Christian).
> ${ }^{2}$ Cp. § 12 above.
> ${ }^{3}$ Thuc. vili. 8 (Thom. Mag. p. 172 R.) ; $\dot{\eta} \mu(\sigma \epsilon a s$ is given also by our mss. except B (which Las $\dot{\eta} \mu$ ( $\sigma$ єlas). Philemon Jekili. An. 99, 24 (iv. p. 8 Mcin., fr. 20 Kock).
> + Meisterhans, p. 31 fif. Examples
for $a \in o$ from old Attic inscriptions given by Cauer C. Stud. viri. 268 ff .
${ }^{5}$ Ahrens D. A. 100; Meister Gr. Dial. r. 90 f.
${ }^{6}$ Ahrens D. D. 187 f .
${ }^{7}$ Rühl I. Gr. ant. 3794. Bechtel Insch. d. ion. Dial. 1914, 13:.
${ }^{8}$ Meisterhans, p. 24, n. 138.
${ }^{9}$ Ar. Vesp. 282 etc.; $\delta ı$ кalav Kaibel Epigr. 95. Schol. Hephest. p. 107 W. cites 'A $\theta \eta \nu a l \omega \nu$ from Eupolis (fr. 35 K .); ac and oct are especially frequent in Hipponax.
${ }^{10}$ C. I. A. in. 50 Kid. twice; 573 IIcip. four times with $a$, once with ar. Meisterhans, p. 25.
$a i \epsilon \tau o{ }^{1}$. Lastly for oc the best known and most frequent example is $\pi o \epsilon i \hat{\nu} \pi \pi o \eta \tau \eta$ 's, from which comes Latin poeta; $\sigma \tau o \alpha^{\prime}$ also became $\sigma \tau o a^{2}$, and in the Attic poets scansions such as тoוoûtos, oîos oíє८ with the first syllable short are frequent.

If then in their final development the diphthongs a८ o८ $\epsilon \iota$ coalesced into the simple sounds $\underline{\underline{e}}$ (that is ancient Greek $\eta$ ), $\overline{\ddot{u}}$ (i), $\bar{\imath}$, yet it follows from this fact of the alternation between a $\iota$ and $a$, o $o$ and $o, \epsilon \iota$ and $\epsilon$, that so long as this took place so freely, the first elements $a \quad o \in$ were still clearly present. A shifting also occurs in the converse direction: on inscriptions of the third century and on Papyrus we find written $\beta o \iota \eta \delta \rho о \mu \iota \omega$ ' $\nu$
 $\epsilon \nu \nu o ́ s$, and $\epsilon \iota$ stands for $\epsilon$ in $\dot{\epsilon} \nu \nu \epsilon i ́ a$ and the examples, Attic and others, mentioned above ${ }^{4}$. Less frequently before consonants ( $\sigma \tau, \sigma \delta=\zeta$ ) ; $\pi a \lambda a \sigma \tau \eta^{\prime}$ in Attic, not $\pi a \lambda a \iota \sigma \tau \eta^{\prime 5} ; \Gamma \epsilon \rho a-$ $\sigma \tau o ́ s$ and $\Gamma \epsilon \rho a \iota \sigma \tau o ́ s$ in manuscripts ${ }^{6}$. T $\rho o \zeta \dot{\eta} \nu \iota o \iota$ has inscriptional warrant ${ }^{7}$. Should any one on the other hand be inclined to
${ }^{1}$ 'Eגaîal, C. I. A. iv. 299a, 7 (before 403) ; elsewhere with simple a, also iv. $53^{\text {a }}, 33$ (в.c. 418). According to Caner C. Stud. viII. 270 the origin is $\dot{\epsilon} \lambda a \iota-i a, ~ c p . ~ a l s o ~ o n ~ a l l=\bar{a} \iota ~ a ~$ Wackernagel K. Z. x́xiri 278. For $\kappa \alpha ́ \omega, \kappa \lambda \alpha ́ \omega$ (Voemel Dem. contiones p. 36) we have no examples on inscript. (the mss. waver) ; on aiєtós Meist. p. 24, n. 142. The proper name' $A \epsilon \tau i \omega \nu$ occurs as early as 4 th cent. at Iasos (Bechtel d. Insch. d. ion. Dial. 104, 16); but nothing obliges us to take the $a$ in this case as long.
${ }^{2}$ бтоца́ Ar. Eccl. 684, 688; $\sigma \tau \omega \iota \alpha$ Mitylen, Dial. Inschr. 273; Curt. Etym. ${ }^{5}$ 216. Attic insor. have only $\sigma \tau 0 a$, Meisterhans, p. 44, n. 384 ; $\sigma \tau o\llcorner\alpha ́$ Chalkid. Ditt. Syll. 369, 25.
${ }^{3}$ Meisterhans, p. 45 f. ; $\beta \circ \iota \eta \theta_{o} \nu$ Pap. L. 27 (2nd cent. rather incorrect); кага-及oın̄s by $\delta o ́ \eta$ on the Papyr. in Ionic dial. (p. 44, note 2), which I place in 4 th cent. Also $\Pi \rho a \xi \iota \iota o i ́ \eta ~ B u l l . ~ d e ~$
corr. hell. x. 340 (epitaph of a woman of Halikarnassus in Rhodes), $\beta$ oingos Calymna, Gr. Inscr. Br. DIus. II. 298, 9.
${ }^{4}$ Bechtel d. Inschr. d. ion. Dial. no. 99 (Miletus) ; do. Thas. inscr. in the Louvre, p. 26, 28. єє for $\epsilon$ ceases according to Meisterh. p. 46 as early as b.c. 250, accordingly much earlier than oc for o; M. refers this to the degeneration of the $\epsilon \iota$ to a simple sound.
${ }^{5}$ C. I. A. in. 167 , I. 321 f. etc.; also $834^{\text {b }}, 11$; in 16,33 a in Köhler's transcription is only a mistake.
${ }^{6}$ O. Riemann Bull. de corr. h. ini. 497.

7 Besides appearing on the snakepillar at Delphi (cp. Thuc. I. 132) it is also constant, C. I. A. iI. 614; Wescher-Foucart, Delph. 4, 50 ; C. I. Gr. I. 106 (whence?) ; Dial. Inschr. 3014 (Megara). Coins shew Tpors. not before Empire, earlier TPO, which points to T $\rho 0 \zeta$., Foucart on Le Bas, II. $33^{\text {a }}$.
infer from the Attic Пoтє $\delta \epsilon \bar{a} \tau a \iota$ from Пotєídaıá, that aı had the same sound as $\epsilon$, the answer would be obvious, that Потєьбä́taь is wanting in euphony and out of all analogy, and

 means to conclude from the censure which occurs in Aristophanes of an inelegantly broad pronunciation of $\kappa \rho \epsilon ́ \mu a \iota o$, that the clegant pronunciation was already at that time $\kappa \rho^{\prime} \epsilon \not \mu \circ^{3}$, but rather that a drawling of the diphthong is the object of the reproof, or perhaps, since the latter is in this case followed by a vowel, a strictly diphthongal pronunciation as opposed to the more careless, which allowed the $\iota$ to become more evanescent. It is certainly possible to pronounce $a i$ as well as $\ddot{a}$ in very different ways. For that $a \iota$ was so early pronounced $e$ and had become identical with $\eta$, appears to me in the face of the constant separation in script a pure impossibility, as also an identity of $\epsilon \iota$ and $\iota$, of o $o$ and $v$; a historical mode of writing running counter to the pronunciation is only possible, where there is a strict grammatical code, which at that period did not exist, and isolated blunders and shiftings make their appearance in spite of such a code, especially in the course of so many centuries. The only examples however which are brought are Пoтє८$\delta \in \hat{a} \tau a l$, a mode of writing which is as invariable as Пoтєíaaca on the other side, and next in the third century a supposed inscriptional $\gamma \epsilon \nu \eta \tau \epsilon$, which does not exist, as the right reading is ö $\pi \omega \varsigma \gamma^{\prime} \epsilon \nu \eta \tau^{\prime} \notin \phi \rho o ́ \nu \tau \iota \sigma\left[\epsilon^{4}\right.$. This leads then to the
${ }^{1}$ C. I. A. I. 240, 241, 242, 244 ; but no less also in 238 , where the no. of letters shews that Kirchhoff is wrong in supplying IIorєı $\delta a \iota]$ âraı. There is absolutely no example for the latter reading; for $\Pi$ отє $\delta \dot{\alpha} \iota-$, 236, can just as well be completed as חotei $\delta$ aia (as in the preceding list, 235).
${ }^{2}$ Merzdorf C. St. viII. 188; Caner do. 268.
${ }^{3}$ Biicheler Rh. Mus. xx. 302; Aristoph. Nules 870 ff.: ФEID.—єi

 $\delta \iota є \rho \rho \cup \eta к о ́ \sigma \iota \nu$. Curtius argues against Büch. in Stud. i. 2. 275.
${ }^{\perp}$ C. I. A. ir. 379, 18, where Köhler
 xxxvr. 617. In like manner v. Wilamowitz in the letter of Attalus to the priest of Pessinus (Domaszewski Arch. Epigr. Mitt. a. Ocst. 1884,95$)$ c. 16 has corrected the $\epsilon \pi \iota \sigma \tau \rho a \phi \eta \sigma \epsilon \sigma \theta \epsilon$ кєlvous of the editor into $-\sigma \epsilon \sigma \theta^{\prime} \dot{\kappa}$. (Lect. epigr. p. 16).
arguments to be drawn from elision crasis etc. The ac of most verb-endings is, as is well known, not only in Homer but also in the Attic comic poets and indeed in prose subject to elision ${ }^{1}$. This fact is explainable without difficulty from the pronunciation $a i$ : in the first place légeta'ẹn was pronounced as $k a^{\prime} e n^{2}$ and as Peirceus; but afterwards the $a$ of this legeta' was treated like that of $\tau a \hat{v} \tau a, \lambda \epsilon \prime \gamma \epsilon \tau^{\prime} \epsilon ่ \nu$ like $\tau a \hat{v} \tau^{\prime} \epsilon ่ \nu$, though $k a$ was as will readily be understood not in general allowed to shrink up into $k$ ', but here crasis was employed. If on the other hand it had been legetē ( $\lambda \epsilon ́ \gamma \epsilon \tau \eta$, as in Bootian), I see no possibility of the long vowel being elided. Further, crasis furnishes, as G. Curtius shews ${ }^{3}$, especially strong arguments for diphthongal pronunciation. Kaì $\bar{\nu}=\kappa \dot{a} \nu, k a^{\prime}$ ẹ $\imath$ becoming $k \bar{a} n$; how could $k \dot{e}$ ẹn become $k \bar{a} n$ ? The same applies to кảкєìvos, кẩ $\tau a, \kappa a ̈ \sigma \tau \iota \nu$ etc. Now no doubt, where there is a frequent occurrence of a certain word-combination, a definite form of crasis might be handed down to a period, in which its elements, having in the intervening time suffered change, ought properly to give a different result: for instance Өátє $\rho o \nu$ is good Attic, though the form in use there is no longer ${ }^{\prime \prime} \tau \epsilon \rho o s$ but $\notin \tau \epsilon \rho o s$. But this is clearly not applicable to the crasis of $\kappa a i$ with any chance word beginning with $\epsilon$ or $\epsilon \iota$. For o८ we have to consider, $\mu o v \sigma \tau i \nu$ from
 $\omega_{\iota} \zeta \zeta_{\nu} \hat{\epsilon}^{\prime}, \dot{\epsilon} \gamma \hat{\iota} \delta \delta a$, also $\theta o i \mu \alpha ́ \tau \iota o \nu ~ l i k e ~ \theta a i \mu a ́ \tau \iota a$, all phenomena as easily comprehensible on the assumption that $o \iota=0 i o$, as they are absolutely incomprehensible supposing os to be $\overline{\ddot{u}}$. With regard to the other dialects, giving a passing notice to the Lesbian diæreses such as öíठa óíкп $(о i \kappa \epsilon i \nu)^{4}$ I call especial attention to the Cyprian writing. This peculiar script, which is entirely independent of that of the ordinary Greek, being not an alphabet but a syllabarium, nevertheless expresses all the diphthongs in a manner entirely analogous to the ordinary script, a clear indication, that this was conformable to the pronunciation, and a
${ }^{1}$ E.g. Deinarch. 1, $40 \pi$ арак $\rho o v o \nu \theta$ '
$i \mu a ̂ s$ (according to cod. N and A pr.);
$2,3 \gamma \epsilon \nu \dot{\eta} \sigma \epsilon \sigma \theta^{\prime}$ aúvò $\quad$ (according to N
pr., A pr.).
${ }^{2} \kappa \dot{\alpha} \dot{\epsilon} \nu$ found in C. I. A. II. 50 ; on
the Ion. Papyr. (see p. 44, note 2) KEN i.e. $\kappa^{\prime} \dot{\epsilon} \nu$ twice (I. 6).
${ }^{3}$ G. Curtius Stud. I. 2, 277 ff.
${ }^{4}$ Ahrens D. A. p. 106. Meister Gr. Dial. I. 96.
certain prouf, that the pronunciation was diphthongal in Cyprus. For instance $a-i-v \epsilon-i$ aif $\epsilon i(\hat{a} \epsilon i$ ), ta-i $\tau \hat{a}$, pe- $i$-se- $i \pi \epsilon i \sigma \epsilon \iota$ (i.e. $\tau \epsilon i \sigma \epsilon \iota$ from $\tau i \nu \omega)$ ( $\eta$ is wanting), ma-to-i Mâठol, to-i $\tau \hat{\omega}$,


## Section 15.

## Transformation of EI, AI, OI, in Bootian.

The above however does not hold good for all dialects, and it is the Bceotian, in which we have already recognized the beginning of itacism in the case of H , that in the case of these diphthongs also has anticipated by centuries the development as it took place elsewhere. The Bœootian sound-system, as referred to the Æolic, shews the following changes:

| Æol. | $\eta$ | $a \iota$ | $\bar{a} \iota$ | $\epsilon \iota$ | $\eta \iota$ | $o \iota$ | $\omega \iota$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bœot. | $\epsilon \iota$ | $\eta$ | $\eta$ | $\iota$ | $\epsilon \iota$ | $\nu$ | $\nu$. |

These alterations however did not all arise simultaneously, and it is not till the inscriptions of the third century that we find them all complete. $\epsilon \iota$, wherever it is really $\epsilon+\iota$ and not $\bar{\epsilon}$, is in many cases in the earliest monuments and at a later period without exception simplified to $\iota$; in those cases, where it
 original, and accordingly we find also $\epsilon \iota(=\eta \ddot{)}$ ) in such words, mavтєi'a 'Avт८үєveicos'. AI is retained in the earlier period, for instance the older coins of Thebes shew GEBAION ; only in Tanagra and Hysir AE is written for at and $\bar{a} \iota$ quite in the
 The old Corinthian writing also had this diphthong, there however the $E$ was equivalent to $\epsilon \iota$; A $\Theta A N A E A$, IIBPAEO $\Theta B N$

[^19]Gr. Dial. 1. 238 ; Plataiai Lolling Berlin. Monatsuer. 1885, 1031 no. 22 é $\pi i \quad \Delta a \mu a \epsilon d e ́ t o \epsilon$. Terent. Scaur. vir. 16 K : : antiqui quoque Graecorum hanc syllabam per ac scripsisse traduntur.
'A $\theta a \nu a f i ́ a ~ \prod_{\epsilon \rho a \epsilon i o} \theta \in \nu^{1}$; $\mathrm{AE} \mathrm{\Theta PA}^{2}$ also is found on a vase which is probably Attic; on the other hand the Thessalian Sapıбá' $\omega \nu$ on coins of Larisa comes not from Sapıraios, but from $\Lambda a \rho ı \sigma a(\imath)$ és s ${ }^{3}$. At T'anagra we find also corresponding to AE the writing OE for oc and $\omega \iota$ : Mó́ $\rho \iota \chi o s$, Moдvapátof; even Priscian compares this Bœotism with Latin oe ${ }^{4}$. I consider AE OE as real diphthongs; for not only in Latin but also in Cymric (Welsh) there is a diphthongal ae oe, distinct from ai oi, though nearly approximating to them ${ }^{5}$; the Corinthian writing however corresponds exactly to the Oscan $\dashv \mathrm{A}, \dashv \mathrm{V}, \dashv$ being the sound midway between $i$ and $e$, just as $\vee$ expresses that between $o$ and $u$.-Afterwards however the Thebans adopted the Ionic H for $a \iota$, even before the introduction of the common
 the regular mode of writing everywhere in Bœotia ${ }^{7}$. At this time therefore tē tīme्e was pronounced with the simple sound $\overline{\bar{e}}$ both in the dative singular and in the nominative plural ; for $\breve{a} \iota$ and $\bar{a} \iota$ also at this time were not distinguished. oc on the other hand remains, if we except Tanagra, not only in the fifth but even in the fourth century, and even subsequently was not ousted by the simple writing $v^{8}$. On very late Bœotian inscriptions we find $\epsilon \ell$, which in other instances appears on these with the evident value of $\bar{i}$, alternating with $v$ as in $\tau \epsilon \hat{l}$, $\Delta i ̀ \tau \epsilon \hat{\imath} \beta a \sigma \iota \lambda \epsilon \hat{\imath}$ (for $\beta a \sigma \iota \lambda \epsilon \hat{\iota}$ pron. basili), $\kappa \grave{\eta} \tau \hat{v} \mathrm{~T} \rho \epsilon \phi \omega \nu \iota[\nu]$ (or $\mathrm{T} \rho \epsilon \phi \omega \nu \hat{\imath}^{9}$ ? ).
${ }^{1}$ Röhl I. Gr. ant. no. 20, 4, 5; cp. above, p. 29.
${ }^{2}$ C. I. Gr. 7746 ; on the other hand Yópae (Ahrens i. 199, 3) is a wrong reading for ९ópa̧, C. I. Gr. 7374, Dial. Inschr. 3127.
${ }^{3}$ Fick Dial. Inschr. 360 ; Beermann, Curt. Stud. rx. 34, compares the two forms $\Pi \epsilon \lambda \iota \nu \nu a l \epsilon \in \omega \nu$ and $\Pi I \epsilon \lambda \iota \nu \nu a i \omega \nu$ from $\Pi € \lambda \iota \nu \nu a$.
${ }^{+}$Prisc. Instit. 1 §53. K $\rho 0 \hat{\sigma} \sigma 0$ on a vase, probably Attic, C. I. Cr. 7756, Welcker Alte Denkm. ini. 481 ff.
${ }^{5}$ R. Lepsius Standard Alphabet p. 172.
${ }^{6}$ Foucart Bull. ini. 136, 140 (Röhl no. 300, Dial. Inschr. 700).

7 Accordingly it must be regarded as due to intermixture of the $\kappa \circ \iota \nu \dot{\eta}$, that in the Theban Proxeny decree in favour of a Carthaginian (Dial. Inschr. 719) a is written throughout.
${ }^{8}$ Ahrens D. A. 194 ff., shewing the local differences; Foucart l. c. 133 and iv. 88 ; Meister Gr. Dial. i. 235.
${ }^{9}$ Dial. Inschr. 382 ff. (Chaironeia), 429 f . (Lebadeia) ; these are all dedicatory documents relating to slaves. The example cited 429, T $\rho \in \phi \omega \nu \imath \imath$ Meist.

EI for OI occurs also sporadically in late Attic ；oi̋кє for
 on an inscrip．dating 100 b．c．${ }^{1}$ The Bootians did not readily admit $v$ instcad of oc before a vowel，e．g．in Bo七 $\omega \boldsymbol{\sigma} \iota^{\prime 2}$ ；according to the Grammarians also oc not $v$ was substituted in Bœotian for $\omega \iota^{3}$ ．All this is very mysterious and perplexing．If the Bcotians finally pronounced $t i D i$ ，one cannot understand，why in the first word they always added the E，against the pro－ nunciation and against custom．The EI must it would seem have been an attempt to imitate the sound，which appeared to their ear something like $e i$ ，just as in the Attic $\delta v \epsilon i v$ ．If this is the case，we shall have for the foundation of this $e i$ in a preceding stage a diphthongal $o i$ ，not a monophthongal $i u$ ， and we must suppose，that the early fluctuation between OI and $\Upsilon$ represents a fluctuation of pronunciation．For oo and $v$ are closcly related to one another both in ancient Greek pro－ nunciation and that of the кouv $\dot{\eta}$ ，as we shall shew hereafter But EI is confined to the endings：$\pi o \iota o \mu \dot{́} \nu \epsilon \iota$ or $\pi o-\iota o \mu \hat{\varepsilon} \nu \epsilon \iota=$ тооо́и $\mu \in \nu o \iota$ ；in these endings（as indeed also in the stems）in Latin also oi has become ei（i）；Nom．plur．oi－ei－i，Dat． ois－eis－is．－The view held by Curtius and Dietrich ${ }^{4}$ ，that in Bœotian oi first became $u i$ and then $\ddot{u}$ ，is contradicted both by the ancient OE，as also by the fact that YI was never written ${ }^{5}$ ， although，in accordance with the value of the $\Upsilon$ prevailing there， this would have been the adequate expression for $u i$ ．
（383 oi $\omega \nu$ stands for $\nu i \hat{\omega} \nu$ ，with omission of $v$ ，which we meet with frequently elsewhere，Mıкó入os Eúфpooóvà 386）．
${ }^{1}$ оікєє Herodian I．504， 16 ；in．463， 31．$\Delta v \epsilon i v$ on Attic insor．Meisterhans， p．124．Toîs 入oıreis C．I．A．II．467， 12 f． $=$ Dittenb．Syll．347．Cp．Фа入 $\eta \rho \hat{\epsilon}$ ， p．32，n． 2.

[^20]found to stand thus；$\pi a r \rho o i o s ~ e t c . ~(o c ~$ before a vowel）was always found in Corinna；that in the same rô for $\tau \hat{\varphi}$ could have stood by the side of $\dot{\epsilon} \mu \dot{v} \tau \dot{v}$ （ $=\tau o l, o i$ ）is not credible．
${ }^{4}$ Curtius Gött．Nachrichten 1862， p．495；Grdz．${ }^{5} 706$ ；Dietrich Flcck． ciser＇s Jalurb． 1872 p．24．On the other hand Bcermann（Stucl．ix． 41 f．） decides for the transition $o i, \ddot{0}$ ．
${ }^{5}$ Méricios is said to be found on one of the tablets of Styra（Röhl，no． 379 ＂sil）；see however Bechtel Inschr． d．ion．Dial．p． 18 （no． $19{ }^{7 \%}$ ）．

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of the diphthongs $\bar{a} \iota \omega \iota \eta \iota$, namely the Delphian manumission documents and the Egyptian Papyri. These writers of the second century were in perfect ignorance, where they ought to put $\iota$ and where $\epsilon \iota$, and wrote Eipıs, $\tau \epsilon \mu \mu \dot{\prime}$, and conversely $\pi a \rho a \mu \iota \nu \dot{a} \tau \omega$ and $i \in \rho i \varsigma^{1}$, and if the Delphian masons at least left the short ॰ to itself, the Egyptians allowed this to be mixed up in the universal confusion, $i \mu i$ and $\dot{\epsilon} \sigma \tau \epsilon i \nu, \sigma v \mu$ $\phi \omega \nu 0 \hat{v} \sigma \epsilon \iota \nu, \ddot{\eta} \lambda \epsilon \epsilon o \varsigma$, öт $\tau \epsilon, \mu \epsilon \backslash \zeta o \nu \epsilon \iota^{2}$. There are however two exceptions. First a $\rho$ following exercises a certain protective power over the E-sound, which is seen also in Latin and in modern Greek ( $\xi \in \rho o ́ s)$; accordingly $\sum \omega \tau \eta \eta^{\prime} \rho a$ and $\chi \bar{\epsilon} \rho a$ are written, just as $\grave{\epsilon} \kappa \epsilon \chi \eta p i a$ is found on an early Delphian record with what appears to be strict Doric $\eta$, for which however the Delphian dialect has $\epsilon \iota^{3}$. Secondly the ordinary

 ground for a long time, so that e.g. in a decree from Byzantium of the time of Tiberius ${ }^{5}$, Х $\rho \eta \eta^{\prime} \varsigma, \pi \lambda \dot{\prime} \circ \nu a \varsigma, ~ \epsilon ̇ \pi \iota \tau a ́ \delta \eta o \nu$,

[^21]$\dot{a} \sigma a \mu \dot{\eta} \omega \tau o \nu$ are written consistently. In like manner an

 $\Delta \omega \rho \epsilon \varepsilon a^{1}$, where the pronunciation was $-i a$, being in some cases
 Asklapīa. For in those cases where this $\epsilon \iota$ is preceded by an $\iota$, either $i \eta$ can arise, as in $\mu \eta \nu \iota \eta a \nu$ and इa $\alpha a \pi \iota \hat{\eta} o \nu$ on the Papyri, or again $\bar{\imath}$, as in vulgar íctía (hygīa) instead of ívíєia, $\tau a \mu \epsilon \hat{i} \nu \nu$ instead of $\tau a \mu \epsilon \epsilon \hat{i} \nu^{2}$. There is no especial degree of consistency to be found in the Latin representation of $\epsilon \iota$ before vowels; Aeneas, Medea, Alexandrea and Alexandria, Dareus and Darius, Clio, Iphigenia; in words taken over at an early period shortening occurs: platea, balineum $\beta_{a \lambda a \nu \epsilon i o \nu, ~ i n ~}^{\text {, }}$ general even at a later period $e$ predominates ${ }^{3}$. The uncertainty of the Greek pronunciation is sufficiently established by $\bar{\epsilon} \pi \iota \tau \eta \dot{\eta} \iota o s$ and $\dot{\epsilon} \rho \mu \eta \nu i ́ a$ on a Papyrus of Herculaneum ${ }^{4}$; in the times of Terentianus Maurus an $i$ was heard in Greek in M $\dot{\eta} \delta \epsilon \epsilon a$, Aiveias ${ }^{5}$, and this agrees with the fact that $\eta$ is no longer written in such words on Attic inscriptions of the second century A.D. ${ }^{6}$ But that previously the E-sound predominated, may fit in with the fact, that $\epsilon \iota$ from the earliest times had a tendency to lose the $\epsilon$ before a vowel. For the rest the simplification to $i$ was already complete over the whole Greek speech-area before the beginning of the Christian era ${ }^{7}$, and
${ }^{1}$ Dittenberger Syll. 399, cp. 400
 $\theta \epsilon \rho \epsilon \epsilon \hat{\imath}$ for - $\rho \epsilon \hat{\imath}$-ri Athens, Meisterh. p. 39).

${ }^{2}$ So also in late Bœotian | el $\sigma \pi \epsilon \epsilon \omega \nu$ |
| :---: | i.e. Thispion for $\Theta \epsilon \epsilon \sigma \pi \iota \epsilon \omega \nu$, Bull. de corr. h. iII. $385=$ Dial. Inschr. 816.' $\begin{array}{r}\text { ria } \\ \text { Athens, Meisterh. 1. c. }\end{array}$

${ }^{3}$ Cp. Priscian I. § 54 f.; K. L. Schneider Ausf. Gr. I. 69 ff.
${ }^{4}$ Gomperz Wiener Akad. Bd. 83, p. 91 f.
${ }^{5}$ Terentian. Maur. v. 441, 458.
${ }^{6}$ Meisterh. p. 37, n. 306 (we must however notice here $\nu \epsilon \epsilon \partial \nu=\nu \eta o ́ \nu, \nu a o ́ v$ on the Roman inscript. of Herodes Attikos, C. I. Gr. 6280, v. 96 ; also
$\dot{\alpha} \tau \rho \epsilon \epsilon \epsilon \epsilon \mathrm{s}$ v. 77).
${ }^{7}$ To avoid useless prolixity, I will only refer to the inscr. of Halæsa C. I. Gr. 5594, where $\dot{\rho} \epsilon \iota \nu$ ós $\dot{\rho} \epsilon i \nu a$ occurs by the side of $\dot{\rho} \iota \nu o ́ s ~ \dot{\rho} \nu v a$. On this point it must be remarked, that according to Etym. Gud. 30, 48 Aristarchus affirmed that $\dot{\rho} \epsilon i$ is was the spelling, on account of the derivation from $\rho \in \omega$; also $\theta \epsilon$ is instead of $\theta$ is on account of $\theta \epsilon i \nu \in \sigma \theta a l$. As regards the supposed confusion of $\epsilon$ and $\eta$ there is need of greater discrimination; for instance I cannot admit, that on the Pap. in Wessely
 (sic) is $=\dot{i} \pi o \lambda \epsilon \epsilon \psi \epsilon \omega \nu$ (cp.ib. p. 196). Of von Herwerden's examples some may be
even if in the second century B．c．care and culture were still able to give not only $\omega \iota$ and $\bar{\iota} \iota$ ，but also $\epsilon \iota$ its due and no more than its due ${ }^{1}$ ，nevertheless this soon ceased to be a possibility， and the distinction of $\epsilon \iota$ and $\iota$ had become a crux orthographica ${ }^{2}$ ． In many cascs the resource adopted was to write $\epsilon \iota$ in all cases for long $i$ ，as on the inscription of Byzantium，which has been cited，$\tau \epsilon \iota \mu \hat{a}$ and $\pi o \lambda \epsilon i \not \tau a \varsigma^{3}$ regularly；this however never became a universal and fixed mode of writing，and the Gram－ marians，especially Herodian，took pains in the opposite direction everywhere to ascertain and carry out the historical method． Even at the present day an orthographic correction is nowhere more frequently necessary than in the case of $\iota$ and $\epsilon$ ．For instance we write $\iota$ wrongly instead of the diphthong in the following words，${ }^{\epsilon} \tau \epsilon \epsilon \sigma a \quad \tau \epsilon i \sigma \omega$ and in all the derivatives of

explained grammatically，very many contain $\eta$ for $\epsilon \iota$ before a vowel（ $\rho$ ）；$\hat{\eta} \tau a$ for $\epsilon i \tau a$ C．I．$A$ ．inI． 39 is found in an inscription which is very imperfectly handed down；finally Xo $0 \lambda \eta \dot{\eta} \delta \eta$ II． 82 shews $\eta$ for $\eta \iota$ ．－In Latin there are certainly some examples，where the E sound has remained even when fol－ lowed by consonants（hypotenusa，Po－ lycletus）．
${ }^{1}$ Of the Papyri of the 2nd century the following are correct and trust－ worthy in disputed questions：Louvre 2 （dialectics）， 15 （judicial verdict）， 22 （petition）；Taur．I．（verdict）．Also on inscriptions：Olbia C．I．Gr．2058； Delphi I3ull．de corr．h．v． 157 （State－ record）．The inscription of the Mys－ teries of Andania（ 93 b．c．）has only one blunder ȧтотьбá $\tau \omega$ l．78；for the writing $\epsilon i \mu a ́ \tau \iota o \nu$ єi $\mu a \tau \iota \sigma \mu o ́ s$ is conform－ able with the dialect．With regard to Attica in 2nd cent．see Dittenberger IIcrm．I．414；Meisterh．p．38，according to whom the confusion properly begins there about 100 b．c．
－Mar．Victor．p． 17 K．says，ortho－ graphia Graecorum ex parto maxima
in ista littera consistit．nam．．．et in quibusdam mediis interponitur verbis， ut＂A $\Delta \delta \eta s$ ，et in extremis，ut $\epsilon u^{\prime} \chi \eta c$ et mopeúnı，et dativis casibus adjungitur， quamvis non enuntietur；et eadem subjecta $\epsilon$ litterae facit longam sylla－ bam $\epsilon$ ．
${ }^{3}$ In like manner e．g．C．I．Gr． 1798 （Epirus）， 2059 （Olbia）， 2335 （Tenos）． Cp．Quintil．1．7．15（cp．p．10，n． 2 above）； Priscian I．50：quam（ci diphthongum） pro omni $i$ longa scribebant more antiquo Graecorum．（Fairly regular in the Greek text of the Monum．Ancyr．）
${ }^{4}$ Sauppe de duobus titulis Tegeat． （Gött．1876）；Blass Pref．Isocr．vol．II．
${ }^{5}$ Examples in proper names are frequent；C．I．A．II． 575 Mecilas； Kuman．＇Е $\pi \iota \gamma \rho . \dot{\epsilon} \pi \iota \tau .97 \mathrm{M} \epsilon \iota \stackrel{\iota}{s} \iota a ́ d o u, 105$

 $482 \mathrm{M} \epsilon \xi^{\xi} \iota \boldsymbol{\gamma}^{\ell} \nu \eta \nu$ ．Herwerden Lap．Testim． 29；Meisterl．p．40．Many examples also for $\sigma \dot{\prime} \mu \mu \in ⿺ 𠃊 ⿴ 囗 十 一$ tos，Meisterh．p．142， n．1253；Riemann Rev．de phil．1x． 91 ；
 би $\mu \mu c i \hat{\zeta}$ a 49 of small value as evidence on account of the incorrectness of this

Потєídaıa, Eùтєaioı and consequently also in eit'́a (willow) ${ }^{1}$, in the names of the letters $\pi \epsilon \hat{\imath}, \chi \in \hat{\imath}, \xi \in \hat{\imath}$, etc. Conversely we

 'Eрікєьa may be inferred є́ $\rho i \kappa \eta$ (heath). Besides izধía and
 cited as vulgar modes of writing to be explained by the contraction of $\iota$ and $\epsilon \iota$. It appears then from so many indirect testimonies added to those which are direct (such as Quintilian's remark, that the Greek $\epsilon \iota$ had the same value as the $e i$ of the early Romans, that is to say long $i^{7}$ ), and further from Latin equivalents, such as Pisistratus Dinarchus, that already in the Roman period, before our era, there was no distinction in pronunciation between $\iota$ and $\epsilon \iota^{8}$. Let us now see, whether the state of affairs is even approximately the same in the case of the other diphthongs of a similar kind and first of all in the case of al.
piece); letters of the Pergamenes (p. 49, note 3) $D, 10 \sigma \nu \mu \mu \epsilon \hat{\xi} \xi \alpha$, See also Curtius Vb. ${ }^{2} 165$.
${ }^{1}$ Meisterh. 39 ff.; G. Meyer² p. 128. $\Phi \lambda \epsilon \circ \hat{u}$ s inscrip. of Lagina, p. 59, note 1.
${ }^{2}$ Four examples for oiktipel ; C. I. A. I. 463 (by means of which the fact was first established by Kirchhoff),
 325 (Thessaly). (On the other hand $\dot{\epsilon \pi о і к \tau \epsilon \iota \rho o \nu ~ E p i d a u r . ~ I n s c r i p . ~ o f ~ I s y l l u s ~}$ ${ }^{\prime}$ Е $\phi \eta \mu$. $\dot{\alpha} \rho \chi .1885,69$ ff. 1. 67, which with $\sigma \dot{\omega} \check{5} \delta \nu \tau 1$ l. 70 serves as a proof, that the Philippos of the inscr. is the son of Demetrius, and accordingly the inscrip. dates from the beginning of the 2nd cent., Fleckeisen's Jahrb. 1885, 822.)
${ }^{3}$ Inser. of Eleusis Bull. de corr. h. iv. 226 ; see also Voemel on Dem. viir. 45.
${ }^{4}$ Numerous exx., for instance Bull.
de corr. h. in. 570 ff. (Delos); Halik. ib. iv. 303; Messene (Eı入avós) ib. v. 151; Korkyra Dial. Inschr. 3220; see Meisterh. $43^{2}$, 3 ff .
${ }^{5}$ See the Attic tribute lists (Herwerden 25, 35, Meisterh. n. 357, 373). As regards $\mu$ á $\gamma \epsilon$ ipos the testimony is contradictory: HOMATIROS Epidaur. 'E $\phi$. à $\rho \chi$. 1885, 197; $\mu$ á $\gamma$ ¢ $\rho o s$ Corcyra Dial. Inschr. 3212; but $\mu$ аүєєріко́v C. I. d. in. 163, 28 (time of Lycurgus).
${ }^{6}{ }_{\epsilon}^{\epsilon} \pi \epsilon i \kappa \epsilon \iota a \quad$ e.g. C. I. Gr. 2264 (Tenos); on $\pi \epsilon \hat{i}$ see Jacobs A. Pal. iil. p. 6884 ; Fleckeisen in his Ja.lirb. 1870, p. 71.
${ }^{7}$ Quint. ı. 7. 15 (see p. 10, n. 2 above). The passage of Nigidius in Gellius xix. 14. 8 is unfortunately corrupt.
${ }^{8}$ This was recognized by Ceratinus (p. 3, n. 1 above) p. 374 ed. Haverc.

## Section 17.

## Later history of AI.

Outside of Beotia the oldest example, which G. Meyer produces, for the confusion of $a \iota$ with $\epsilon \iota \eta$, is $\dot{a} \nu a \iota \rho \epsilon \rho \eta \mu \epsilon \in \nu o v$
 inscription of about the fourth century ${ }^{1}$. It is thought then, that the Ionians of Thasos said aipaippual, instead of dipaip $\mu \mu a \iota$ of Herodotus; but I can think of nothing more intrinsically suspicious, than a form which not only is very clumsy, but is not even really read (on the stone). It is certainly much more likely, that in this dialect too shortening has taken place, $\dot{\nu} \nu \epsilon \rho a i \rho \eta \mu a l$ or $\dot{a} \nu a \iota \rho \epsilon ́ \rho \eta \mu a \iota^{2}$; in any case the example is isolated and not such as to warrant general inferences.

In the next place for the third century the Reuchlinians have that great crowning proof, the epigram of Callimachus, where Echo returns the words vaixi калòs with äд入os ${ }^{\prime} \chi \chi \epsilon$, that is nechi-ech ${ }^{3}$. The lines run according to the traditional

 with Henrichsen ${ }^{4}$, that Callimachus was far too subtle a poet, to present to us such an absurd Echo, as to repeat the words addressed in reverse order. Since moreover tis is unsuitable as applied to ' $\mathrm{H} \chi{ }^{\omega}$ ', we shall probably be right in accepting E. Petersen's ${ }^{5}$ emendation, $\Lambda v \sigma a \nu i ́ \eta, \sigma \grave{v} \delta_{\epsilon} \nu a \imath \chi i ̀ ~ к а \lambda o ̀ s ~ к а \lambda o ́ s . ~ . ~$
${ }^{1}$ Bergmann Herm. ini. 233 (Bechtel Inschr. d. ion. Dial. no. 71). 'Араı $\rho \in \rho$. stands there twice, ... $\rho a \rho \rho \eta \mu$. once. (To explain the Lesbian $\alpha i \mu \nu \sigma \nu s=\ddot{\eta} \mu \sigma \sigma \nu$ from the orthographical representation of $\ddot{a}$ by ac, as is done by G. Meyer ${ }^{2}$ $\S 37,113$, is more than questionable, since this dialect shews elsewhere not the slightest trace of such confusion, and it is evident that in aircous aipiovos Alolodos we have a peculiar phonetic development.)
${ }^{2}$ Bechtel supposes àva]paıp. and sees in the 2nd form inner reduplica. tion as in $\dot{\eta} \nu i \pi a \pi o \nu$.
${ }^{3}$ Callim. A. P. xir. 28.
${ }^{4}$ P. 134, fi.
${ }^{5}$ E. Petersen Prour. Dorpat 1875; Schneider suggests $a^{\prime} \lambda \lambda o \nu \quad \notin \chi \in \nu$. Wilamowitz IIom. Unter. 350 considers Echo as the reply which necessarily follows and denies nuy intentional jingle.
 Accordingly the mention of echo applies to the repetition of кадós and there is no longer any question of a harmony of sound between $\nu a \iota \chi i$ and $\epsilon^{\prime} \chi \in \iota$. Should any one however prefer to take it as an instance of parechesis, nothing is easier than by reading $\phi \eta \sigma i{ }^{\prime} \tau \iota s a ̈ \lambda \lambda o s$ " $\epsilon \chi \omega$ " to restore such between ' $\mathrm{H} \chi \omega$ ' and $\stackrel{\epsilon}{\epsilon} \chi \omega$. But a positive refutation can be given in the following manner. If in the time of Callimachus there was no distinction in the most cultivated court speech between the sounds $a \iota$ and $\epsilon$, in the vulgar speech of the second century there can have been absolutely no difference whatever. In that case however uneducated writers must of necessity confound $a \iota$ and $\epsilon$ (or $\eta$ ) in the same degree, that they intermix $\epsilon \iota$ and $i \grave{\iota}, o$ and $\omega$ and so on. What then are the facts of the case? The somewhat incorrect astronomical papyrus in the Louvre has $\delta \rho \hat{a} \tau \epsilon^{1}$ for $\dot{\delta} \rho \hat{a} \tau a \iota$ once. The fragments of writing on the reverse side of the same shew no error. The same may be said of papyrus No. 23, where besides $\dot{\epsilon} \sigma \tau \epsilon i ́ \nu$ etc., $\dot{\alpha} \sigma \pi a \sigma \dot{\alpha} \mu \epsilon \nu o s ~ \tau \grave{\eta} \nu$ $\mu a ́ \chi a \iota \rho a \nu$ stands for $\sigma \pi a \sigma a ́ \mu \epsilon \nu o s$ and $\pi i \nu o \nu \tau \epsilon s$ for $\pi \epsilon \iota \nu \omega \sigma a \iota$. On the other hand on No. 43 we find ${ }_{\epsilon} \rho \rho \rho \sigma \sigma \theta a \iota$ for $-\sigma \theta \epsilon$ and

 Papyrus ${ }^{2}$. On Weil's large papyrus ${ }^{3} \pi \iota \sigma \tau \epsilon \dot{\sigma} \sigma \epsilon \tau a \iota$ stands for
 $\xi \in \nu a<\kappa \epsilon \iota \nu$ for $\tau o \hat{v}$ ( $\tau \grave{o}$ ) $\mu \grave{\eta}{ }^{\prime} \xi \epsilon \nu \epsilon \gamma \kappa \epsilon i \nu^{4}$ is an unintelligible corruption and cannot be regarded as evidence. And nevertheless these bungling copies bristle with the most crying confusions of $\epsilon \iota$ and $\bar{i}$ and such like errors. Accordingly it is quite plain that the $a \iota$ of the verb-endings $-\sigma \theta a \iota-\tau a \iota$ sounded in the speech of the uneducated like the $\epsilon$ of the endings $-\sigma \theta \epsilon$ $-\tau \epsilon$; but then these are cases, where the diphthong was from of old liable to elision and had no influence on the accent; the representation by $\epsilon$ not by $\eta$ may be to some extent connected with this weakening. But we nowhere read $\dot{\eta} \mu \epsilon \rho \eta(-\rho \epsilon)$ for $-\rho a \iota$, or $\kappa \dot{\eta}$ ( $\kappa \dot{\epsilon}$ ) for $\kappa a i$, or $\dot{\eta} \rho \hat{\omega}$ for aip $\hat{\omega}$; on the contrary $\epsilon_{\epsilon} \lambda a \nu$ is the

[^22]shortened form of ${ }^{\epsilon} \lambda a \iota o \nu^{\prime}$, as $\sum a \rho a \pi \iota \hat{\eta} \nu$ of $-\pi \iota \epsilon \hat{\epsilon} \nu^{1}$; it is therefore quite impossible, that $a \iota$ was at that time universally confounded with $\in \eta$ and had ceased to preserve the $A$-sound. The contemporary inscriptions are perfectly free from examples of interchange, even those from" Delphi in other respects so incorrect; on those from Attica the confusion of $a \iota$ and $\epsilon$ cannot be proved before the second century a.D. ${ }^{8}$ It may be mentioned that where in the period of the Empire $a \iota$ is written as $e$, this is expressed not only by $\epsilon$ but also by $\eta$, for instance on an inscription from the Thracian Chersonese we find $\kappa \dot{\eta}$ twice side by side with $\gamma v \nu \epsilon \kappa i, " H \phi \eta \sigma \tau o{ }^{4}$ on a papyrus. Dionysius of Halicarnassus furnishes an unmistakeable testimony for the correct pronunciation of the Augustan period; he says that каi 'A $\theta_{\eta \nu a i} \omega \nu$ in Thucydides is a case of harsh compositiou, since the sounds of the $\iota$ of $\kappa a i$ and the $a$ of 'A $\theta \eta \nu a i \omega \nu$ could not blend into one ${ }^{5}$. Demetrius the rhetorician declares the name Aiain to have a particularly harmonious sound ${ }^{6}$, surely however not pronouncing it eee. In the next place the Grammarians describe $a \iota$ in contra-distinction to $\boldsymbol{a}$ as $\dot{\eta} a \iota \delta i-$ $\phi \theta o \gamma \gamma o s \dot{\eta} \dot{\epsilon} \kappa \phi \omega \nu 0 \hat{v} \sigma a$ qò $\iota^{7}$, an expression which, to say the least of it, is very ill suited to $a \iota=e$; for in that case why should it not be $\dot{\eta}$ iooovva $\mu o \hat{v} \sigma a \tau \hat{\varphi} \eta$ ? This description caused even Aldus Manutius ${ }^{8}$ to recognize and insist on the distinction between the modern Greek pronunciation of the diphthongs and the genuine ancient sound.-If then in spite of all this the
${ }^{1}$ Pap. L. no. 31.
2 That I may pass over nothing, I notice the Rhodian verse inscription A $\pi a l \lambda o v$ ( $=$ ' $A \pi \epsilon \lambda \lambda o \hat{v}$ ?) in ' $A \theta \dot{\eta} \nu$. III. 226. On the inscr. of Mylasa C. I. Gr. $2693^{\circ}$ (Rhodian money; no Roman
 do not occur at all; see more correct copy Le Bas v. 416, 414.
${ }^{3}$ Meisterhans, p. $26{ }^{2}$.
${ }^{4}$ Bull. de corr. hell. iv. 514; Kaibel Epigr. 372 ; Pap. L. no. 19. Cp. however p. 38, n. 1 above, p. 69, n. 2 below.
${ }^{5}$ Dionys. $\pi$. $\sigma \nu \nu \theta$. p. 167: $\dot{\eta} \tau \hat{\omega} \nu$

$\sigma \nu \nu \epsilon \chi \grave{s} \tau \hat{\eta} s$ à $\rho \mu о \nu i a s$ каi $\delta \iota \notin \sigma \tau а к \epsilon, \pi a ́ \nu v$

 a, каі $\dot{\alpha} \pi о к \delta \pi т о \nu \sigma a \iota \tau o ̀ \nu ~ \dot{\eta} \chi o \nu$.
${ }^{6}$ Demetr. $\pi \cdot \dot{\epsilon} \rho \mu \eta \nu . \S 69: \pi o \lambda \lambda \dot{\alpha} \delta \dot{\epsilon}$ $\kappa а i \delta i \grave{\alpha} \mu \delta \nu \omega \nu \tau \hat{\omega} \nu \phi \omega \nu \eta \epsilon \nu \tau \omega \nu \sigma u \nu \tau i \theta \eta \sigma \iota \nu$
 каi Ev̌ıos, où $\delta \epsilon \ell \nu \tau \epsilon \delta \nu \sigma \phi \omega \nu o ́ \tau \epsilon \rho a \quad \tau \omega ิ \nu$
 $\kappa \dot{\tau} \tau \epsilon \rho а$.

7 B. d. p. 1214; more corrcctly elsewhere $\dot{\eta}$ aı $\delta \ell \phi \theta$. $\dot{\eta} \not{ }^{\ell} \chi o u \sigma a$ тò $1 \grave{\epsilon} \kappa$. $\phi \omega \nu o v ́ \mu c \nu o \nu$.
${ }^{8}$ Cp. above, p. 2.

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-o (u): planstrum plostrum caudex codex, claudo cludo, Claudius Clodius. Whoever then does not deny, that the Romans pronounced $a u$ as a diphthong, must allow to ae the value of a real diphthong. Moreover Varro by no means says, that the writing fluctuates between sceptrum and scaeptrum, but: partim dicunt sceptrum, partim scaeptrum, and we must interpret what precedes in accordance with this: in pluribus verbis A ante E alii ponunt (in pronunciation) alii non ${ }^{1}$. Should the question be asked, why the Romans made scaeptrum scaena out of $\sigma \kappa \hat{\eta} \pi \tau \rho o \nu \sigma \kappa \eta \nu \eta$, if they did not pronounce the sound as skena, but rather as skaena, I suggest that these forms shew an intermediate form between the $\sigma \kappa \hat{a} \pi \tau \rho о \nu ~ \sigma \kappa a \nu a ́$ of Magna Graecia, which the Romans received first, and the $\sigma \kappa \hat{\eta} \pi \tau \rho o \nu \sigma \kappa \eta \nu \dot{\eta}$ of the кoıv $\dot{\eta}$ which reached them at a later period. For although $\eta=\underline{e}$, no Roman of ancient times thought of writing Daemaetrius or thaesaurus, but ae for $\eta$ is confined to the two words in question, in these however and especially in scaena the writing is almost without exception. Diphthongizing has also taken place sporadically in austrum $=$ ostrum (öवт $\rho \in \iota o r$ ) and in Latin words such as ausculum ( $f_{\text {aemus }}$ faenum); just as $a i-e$, so $a u-o$ lie very near together in sound, and foreign words adapted to popular use are especially liable to peculiar treatment ${ }^{2}$. It is also worthy of mention, that Latin poets occasionally scan Phaethon as a dissyllable, by no means however with a pronunciation so remote from the original sound as Plethon; Quintilian calls this ovvaipeoıs³. At the period then, in which Latin ae became the simple sound, that is in the third and still more in the fourth century ${ }^{4}$, the Greek al also had suffered the same fate ${ }^{5}$; but up to that time al and ae may be considered to have preserved their

[^23]character of double sounds, not indeed in the mouths of the people ${ }^{1}$, nevertheless in the cultivated speech. The oldest testimony as regards $a \iota=\bar{\epsilon}$, corresponding to that of the later Latin Grammarians on ae as the lengthened form of the open $\breve{e}$, is to be found in the treatise of Aristides Quintilianus $\pi \epsilon \rho i$ $\mu o v \sigma \iota \kappa \hat{\eta} s$, which is placed by some in the second, by others in the third or even the fourth century, but which judging by the names of those to whom the author dedicates it, Eusebius and Florentius, certainly cannot belong to the second ${ }^{2}$. The evidence drawn by the followers of Reuchlin from transcriptions in the Septuagint is quite worthless. For the fact of Bethel being written $\mathrm{B} a \iota \theta \eta \lambda$ and Elam Ainá $\mu^{3}$ does not shew that $a \iota=e$, but rather, if indeed it shews anything at all, that Hebrew Tsere with Yod quiescens was represented by ai. In the first place it ought logically to have been written $\mathrm{B} a \iota \theta a i \lambda$, if the sound were the same in both syllables, and in the second place the combination of Cholem with Vau quiescens is perfectly analogously represented by av: Av̀váv Onan, $\mathrm{N} a \beta a u u^{N} N e b o^{4}$. Finally this point too does not appear to me proven, that so early as the second century A.D. Herodian had given orthographic rules on $a \iota$ and $\epsilon^{5}$. For why not also on $\eta$ and $a \iota$ ? H was at that period certainly still $e$. There are moreover at the
${ }^{1}$ The wall inscriptions of Pompeii shew the greatest confusion, both be$\mathrm{t}_{\text {ween }} a e$ and $e$, and between al and $\epsilon$. For example, sometimes cinaedus sometimes cinedus; no. 1684 etati maeae, haberae; 733 ̇̇ $\nu \theta a ́ \delta a \iota ~ к а т о к \kappa \epsilon \hat{\imath}, ~ \mu \eta \delta \grave{\iota} \nu$
 too it is evident that Lat. $\bar{e}$ Gr. $\eta=\bar{e}$, Latin $\breve{e}$ Gr. $\epsilon=e$, cp. p. 37, n. 5 above).
${ }^{2}$ Aristid. $\pi$. $\mu$ ovo. p. 56 Jahn (93 Meibom.): $\tau \grave{o ̀} \delta \grave{\epsilon} \bar{\epsilon} \theta \hat{\eta} \lambda \nu \quad \mu \epsilon ́ \nu \dot{\epsilon} \sigma \tau \iota \kappa a \tau a ̀$ тò $\pi \lambda \epsilon i ̂ \sigma \tau o \nu ~ \dot{\omega} s ~ \pi \rho o \epsilon i p \eta t a l ~(" h a s ~ a ~ f e m i-~$ nine character in contra-distinction to the masculine $o$ and the neutral $a$ "), $\tau \hat{\varphi}$


 degree") ${ }_{\eta}^{\rho} \rho \in \dagger \nu \omega \tau \alpha l$. -As regards the period of Aristides, cp. Jahn in the intro-
duction; what the latter says p. xxx. f. against Cæsar's argument from the names, has not the least significance.
${ }^{3}$ Frankel Vorstudien zur Septuaginta p. 115; O. de Lagarde Onomastica sacra. $\mathrm{B} \eta \theta-(\mathrm{B} \epsilon \theta-)$ is found for $\mathrm{Ba} a \theta$ in other names, but $-\eta \lambda$ (simple Tsere) is never written -al $\lambda$.
${ }^{4}$ Frankel ib. p. 116.
${ }^{5}$ I must here run counter to the authority of Lenz, who tries to prove (Herod. p. cr.), that H. has given such rules, and who accordingly collects from the Byzantine writers everything having reference to this in the fragments repi op $\rho 0$ orpapias, while he sets aside their rules on $\eta-\epsilon t-\iota, 0 l-v, 0-\omega$ (cp. p. cir. f.). But the proofs are neither numerous nor sufficiently strong.
present time hardly any instances of uncertainty of writing with regard to al and the E-sounds. It is a ridiculous thing, that the name of the well-known Athenian, who fell at Marathon, is written $\mathrm{K} v \nu a i \gamma \epsilon \iota \rho o s ~ i n s t e a d ~ o f ~ K \nu \nu \epsilon ́ \gamma \epsilon \iota \rho o s, ~ i n ~ w h i c h ~ l a t t e r ~$ spelling it gives the intelligible sense "urger of the hounds" and may be compared with Kvvó $\rho \tau a \varsigma$. According to Moeris tooth-ache is in Attic $\dot{\eta} \mu \omega \delta i ́ a$, in Hellenistic ai $\mu \omega \delta^{\prime} a^{1}$; but the Attic form is perhaps an invention of someone who found the imperfect of the verb $a i \mu \omega \delta \iota \hat{a} \nu$ written $\mathrm{HM} \Omega \Delta \mathrm{IA}^{2}$. The form $\sigma \eta \mu a i a \quad$ (standard) for $\sigma \eta \mu \epsilon i ́ a$ is erroneous: all the older inscriptions such as the Monumentum Ancyranum, and also the oldest manuscript of Polybius, shew either - $\epsilon i-$ or, which comes to the same thing, $-\eta^{\prime}$ - or $-\dot{\varepsilon}$-, which latter form explains the false -aín. The extraordinary contrast to the confusion in the case of EI -I is unmistakeable.

## SECTION 18.

## Sulsequent history of OI.

OI appears to have become confounded with $v$ at about the same time, that aı was confounded with $\epsilon$. It had never been very far removed from this sound; if the attempt is made to


 $\overline{\bar{y}} \pi \epsilon \rho i$ où $\delta \epsilon \tau \epsilon \rho \omega \nu$. Are these the ipsissima verba of Herodian, or has he not rather merely set 'A $\beta \alpha \kappa$. under the neuters in -alvov? Theogn. xiI. 26 (Lenz iI. 409) etymology of $\chi$ ait $\eta$ from 'H $\rho$. $\dot{\epsilon} \nu \quad \tau \hat{n} \dot{o} \rho \theta o \gamma \rho a \phi i a$. Is it really likely that he intended by the etymology (from крат $\omega$ крáт $\eta$ ) to guard against the barbarous writing $\chi \epsilon \tau \eta$ ? P. 410, an etymology of axpc is cited from the same work. Eustath. 1392. 23 (L. ib.) on rainoxos and reooxos rnouxos, from Didymus and Herodian. This is an isolated case if one at all. The thl passage (Jo. Alex. 18. 23)

Lenz himself ceases on mature consideration to reckon as belonging to the fragments of Herodian. And now with these compare the abundance of instances, even out of re $\rho i$ Movipous $\lambda \epsilon \xi \epsilon \omega s$, in the case of $\epsilon t-l, q-a$ etc.! In the same way Marius Victor. (see above p. 62, n. 2) says that the orthography of the Greeks had to do for the most part with ı mute and $\epsilon$; there is no mention of al.
${ }^{1}$ Moer. 198.15; aip. is in many cases the traditional reading in Aristotle.

2 Timokles in Ath. vi. 241 a uses the form $\dot{\eta} \mu \omega \delta / a$ in such a context, that any one might well take it for the sub. stantive.
${ }^{3}$ Dittenberger syll. p. Lisy.
pronounce oc really with the closed $o$, as must be done in accordance with what has been said above, the small interval separating it from $\ddot{u}$ will be remarked. Consequently Eustathius may be right in seeing intentional alliterations in the Homeric $\sum_{\kappa u} \lambda \lambda \eta \kappa o i ́ \lambda \eta s, \mathrm{X} \alpha \rho v \beta \delta \iota s$ àva $\rho \rho o \iota \beta \delta \epsilon i^{1}$, and there is a close
 Accordingly there is no more need to assume any intermediate step, in order to explain the common Greek transition of oc to $v$, than to assume such a step between $a \iota$ and $\epsilon$. The transition through ui assumed by Curtius and others was destitute of actual traces even in Bœotian; that through $\ddot{o}$ must be decidedly rejected both for that dialect and for the Greek dialects taken as a whole ${ }^{3}$. For it is always open to suspicion to enrich a language with a new sound taken from other languages; moreover $\ddot{o}$ that is the sound intermediate between $o$ and $e$ is no nearer to $o i$ than is $i \ddot{ }$, which forms the middle point between $u$ and $i$. Latin oe, by which oc is regularly represented except in Troia and anquina (áүкоьva) ${ }^{4}$ which were taken over at an early date, was in my opinion ${ }^{5}$ just as much as ae and for as long a time as the latter a real diphthong, but afterwards passed not like ae into an open but into a closed $e^{6}$. Whether it was at any intermediate period $\ddot{o}$, I do not venture to decide; still it seems dangerous even here to assign this special sound to such an extremely small number of words in the language. As regards the time of the transition of oc to $v$, we find isolated examples of the simple spelling so early as a papyrus of the second century B.c., but only where it is accompanied by very negligent orthography and grammar: aj $\nu v v^{\gamma} \epsilon \tau \epsilon, \dot{a} \nu \gamma v^{\prime} \omega^{7}$. The later inscriptions in general interchange oc with $v$ in the same degree as aı with

[^24]Seelmann Auspr. 226 f. hold the same view.
${ }^{6}$ This is shewn by its representation in Romance by e (Diez Gramm. r. ${ }^{2}$ 170), while ae corresponds to Romance $i e$; oe and $\bar{e}$ are treated entirely alike, and $\bar{e}$ was closed, Schuchardt Vulgärlatein iII. 151. Seelmaun 227.
${ }^{7}$ Pap. L. 50 (160 в.c.), 51.
$\epsilon \eta^{1}$; the orthographic rules on ot $v$ belong to the period of the Byzantine writers ${ }^{2}$; this statement however according to what has been said before applies equally to the case of at $\epsilon$. ot has shared with $v$ the fate of becoming first $\ddot{u}$ and finally $i$.

## Section 19.

## Pronunciation of genuine Or.

Of the three corresponding diphthongs with $\breve{{ }_{\mathrm{e}}^{2}}$, AT ET OT, we have already had occasion to treat of the rarest and the first to disappear, namely ov. It is self-evident that its second element was $u$ not $u$, and that accordingly simplification took place by $\grave{\epsilon} \pi \iota \kappa \rho a ́ \tau \epsilon \iota a$ as in the case of $\epsilon \ell$. An ou occurs as is well known in old Latin (douco, ious), in old German, in English, in Portuguese and other Romance dialects; it is nearly related to $a u$, which arises from ${ }^{3}$ it as in German, or forms its origin as in Portuguese, cousa our ${ }^{4}$. This ou however is related rather with the Greek $\omega v$ (ou) than with ov (ou); moreover in the case of the latter there is hardly any appearance of contact with $a v^{5}$. The genuine diphthong ov is found in ouv, ovitos coûto etc., where it is formed by the addition to o of the same $v$, which in $a u ̈ \tau \eta$ тav̂ta produces with $a$ the diphthong av; also in roooù os
 $\theta o s$ ( $\mathrm{cp} . \kappa \epsilon \in \lambda \epsilon u \theta o s$ ), in $\beta o u ̂ s$ ( $\beta o u ́ \tau \eta s)$ Bovtád $\eta$ s, in $\delta o u ̂ \lambda o s$ (written

 2824, 2826 Aphrodisias; $\dot{a} \nu \hat{\jmath} \xi_{\zeta} a \iota \dot{a} \nu u ́ \xi \iota$ Cephallenia C. I. Gr. 1933; à $\nu \hat{\jmath} \mathfrak{\xi} a s ~ b y ~$ $\gamma \nu \mathrm{ve} \mathrm{\kappa l}$ and ки́ liull. de corr. hell. iv. 514 (Thracian Chersonese). oimb Lyd. 126 a. b. ib. viri. 378. The earliest example from Attica is Hocave $\psi(\omega \hat{\nu} a$ (about 238-244 a.d.) Meisterh. p. 46".
" Even according to Lenz, Herod. 1. p. ciii., who allows the possibility of an exception only for certain words such as $\delta \rho o l \tau \eta \delta \rho u ́ r \eta$. In L. .1. p. 120t
(L. in. 645, 13) Herodian speaks of the pronunciation ( $\dot{\epsilon} \kappa \phi \omega \nu \epsilon i \sigma \theta a \iota$ ) of the $\sqrt{ }$ in $o c$ in contrast to its silence in $\omega \boldsymbol{\omega}$.
${ }^{3}$ Cp. p. 7 above.
${ }^{+}$Diez Gramm. r. ${ }^{3}$ 171, 379.
${ }^{5}$ In the Athenian tibute lists the forms Aùlıâraı and Uù入ıâtal inter. change in a Carian name.
${ }^{6}$ Cauer C. Stud. viIf. 258 f.; $400^{\circ}$. AION C. I. A. I. 333 ; on Gortyn. Inser. it is true we find $\triangle O \Lambda O \Sigma$.
etc. ${ }^{1}$; all these instances rest on the testimony of ancient, especially ancient Attic, inscriptions, which continue to distinguish ou and $\bar{o}$. It must be admitted, as we have said before, that the line of demarcation is not exceedingly sharp, and accordingly we find both TOTON $\tau o \hat{\tau} \tau o \nu$ and BON $\beta o \imath \imath \nu \nu^{2}$, and in the case of $\Phi$ PO؟PO乏 ФPOPO $\Sigma^{3}$ (from $\pi \rho o$ Fopa $^{\prime} \omega$ ) it is difficult to say which is correct. In ápoupa the genuine diphthong is shewn by the Cyprian writing $a-r o-u-r a^{4}$.

## SECTION 20.

## Pronunciation of A؟ E؟.

There remain AT E؟, diphthongs, whose fate was notably different from that of all the others, inasmuch as here there took place not a simplification, but a hardening of the second element into a consonant. The Greeks of the present day pronounce them as $a v e v$ before vowels and soft consonants ( $\beta \gamma \delta, \lambda \mu \nu \rho, \zeta)$ that is according to their usual writing $a \beta \epsilon \beta$, but before hard consonants $(\pi \kappa \tau, \phi \chi \theta, \sigma)^{5}$ af $e f,=a \phi \epsilon \phi$, e.g. $\epsilon \beta \epsilon \rho \gamma \epsilon \sigma^{\prime} a$, ${ }_{\epsilon} \beta \beta \delta \iota \nu$
 ment forms a decisive proof, that in ancient Greek the $v$ in this diphthong, at least in general, had preserved its original $U$-sound free from modification ${ }^{6}$, and accordingly must be transliterated by $a u$, ẹu and not by $a \ddot{u}$ e $\ddot{u}$. For the development of $v$ from $\ddot{u}$. would be as difficult as that from $u$ is easy. At the same time in the case of $\epsilon v$ traces are not entirely wanting of a modification of the second element: $\epsilon v$ interchanges with $\epsilon \iota$ in ' $I \lambda \epsilon i$ '$\theta v \iota a{ }^{\text {'E }} \lambda \epsilon \hat{v}^{\prime} \theta \nu \iota a{ }^{\prime} E \lambda \epsilon v \theta \omega^{\prime}$; further we find on an inscription of

[^25]60 в, 20.
${ }^{5}$ Before $\sigma$ only in cultivated pronunciation ; the popular pronunciation is $p s$ (see Appendix).
${ }^{6}$ The same opinion is held by G. Curtius, G. Meyer and others.
${ }^{7}$ 'E $\lambda \in v \theta u l a s$ Cret. (Le Bas v. 67, 74, Bull. de corr. hell. mi. 293, 1. 13), ' $\mathrm{E} \lambda \epsilon \cup \theta \dot{\omega}$ in the Anthology (A.P. 7. 604, 9. 268), ' $\mathrm{E} \lambda \epsilon \in \theta i a " \mathrm{E} \lambda \epsilon \cup \sigma i a$ Sparta Mitth. arch. Instit. I. 162, Dittenb. Syll. 191.

Mantinea belonging to the first century b.C. aitá $\nu$ and $\dot{\epsilon} \pi \iota \sigma \kappa \epsilon \iota a ́ \nu$, side by side with frequent instances of $a v$ and $\epsilon \nu^{1}$. The Ionians however were so far from tending to such a pronunciation, that in the fifth fourth and third centuries they wrote with more or
 $\lambda \epsilon о к о i{ }^{2}$. This need imply no difference of pronunciation from the Attic, for au could be equally or more correctly represented by $a o$ i.e. $a!$ as by $a v$ i.e. $a \ddot{u}$, and this mode of writing was also made easy by the treatment in Ionic of original $\epsilon \circ$, which became in pronunciation and for the most part also in writing $\epsilon v: \kappa a \lambda \epsilon \hat{v} \nu \tau \epsilon \varsigma, \dot{\epsilon} \pi \sigma i^{\prime} \epsilon \nu \nu$. There is an isolated instance of $\epsilon o v$, Eú $\rho v \sigma \theta \in ́ \nu \epsilon o u s$ from Samos $^{9}$. This very contraction into $\epsilon v$ was in many places usual in Doric ${ }^{4}$, and wherever it occurs furnishes a proof, that in the district in question $\epsilon v$ was not e $u$. ao also in many places became $a v$ : Arcadian and Cypriot -av in the Gen. of the 1st Declension; इavкрáтєıs $\Sigma a u ́ \mu \epsilon \iota \lambda o s ~ \Pi \rho a u ́ \chi a^{5}$ in Bœotian, from $\sum a o-, \Pi \rho a o ́ \chi a$. The Ionians on the other hand made $\bar{a} o$ first into $\eta o$ then into $\epsilon \omega: \pi o \lambda i ́ \tau \epsilon \omega, \lambda \epsilon \omega \prime \varsigma, \chi \rho \epsilon \omega^{\prime} \mu \epsilon \nu o s$, certainly implying a sort of diphthong (ẹ), since this $\epsilon \omega$ decidedly resists separation into two syllables ${ }^{6}$. The process is this, the second vowel is lengthened and approximates to $a$, while the first loses some of its $a$-sound and is shortened. In the Doric ${ }^{\text {E }} \mathrm{E}_{\rho \mu} \boldsymbol{\mu} \rho \eta \hat{v} \nu$ T $\iota \mu о \kappa \rho \eta \hat{\nu} \nu$ from ${ }^{\text {' }}$ E $\rho \mu о \kappa \rho \epsilon ́ \omega \nu$ we have the converse process ${ }^{7}$. But, to close this digression; the close relationship of $\epsilon v a v$ to corresponding combinations of an $O$-sound is sufficiently made clear, and to return to the point from which we started, the value of this $v$ has been thereby established as distinct from the ordinary

[^26]vowel are notably frequent, l. \& тuto$\sigma а \cup \tau о=\tau а \dot{\tau} \tau о \sigma a \nu \tau о \hat{\nu}, 6$ є $\nu \theta \nu \tau a=\dot{\epsilon} \nu \theta a \hat{\tau} \tau a$, 9 «кєтvovoa, also 14 кєлиєє.
${ }^{3}$ Bechtel Inschr. d. ion. Dial. 217. B. would also explain thus (p. 58)
 n. 4 above.
${ }^{\wedge}$ Ahrens D. D. 213 ff .
${ }^{5}$ G. Meyer² p. 136; Ifpaúxaє Röhl no. 127, who explains rightly.
${ }^{6}$ G. Meyer ${ }^{2}$ p. 148 f.
${ }^{7}$ Cauer Dcl. ${ }^{2} 169$.

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the first place then on archaic Cretan inscriptions also we find as a rule $a v \epsilon v$ ，and on the Gortynian law code without exception． In the next place examples are not wanting of a writing which was evidently in a state of fluctuation，corresponding to the
 just as an old Naxian inscription also shews AFVTO à̀ $\boldsymbol{\imath} o \hat{v}$ ，an example of F in Ionic to which exception has long been taken though to no purpose ${ }^{2}$ ．Now this fluctuation points to the fact，that the sound $a u$ was adequately represented neither by $a v$ i．e．$a \ddot{u}$ nor by $a \mathrm{~F}$ ．In the third place it may be erroneous to give to the F the value of the English and Romance $v$ and not rather that of the English $w$ ，which as is well known belonged to the Latin $v$ ．For on a later Cretan inscription，dating from the time when the digamma was disap－ pearing，vé $\rho \gamma \omega \nu$ i．e．F ${ }^{\prime} \rho \gamma \omega \nu$ ，$\epsilon^{\prime} \rho \gamma \omega \nu$ is found repeatedly，and the name of the town Axus，properly $\operatorname{Fi} \xi \xi^{\circ}$ s，appears more than once as＂Oa $a$ os；while on the other hand it is true，that the sound might be thickened to a spirant，written $\beta$ ，instead of being resolved into a vocalic syllable：$\delta \iota a \beta \epsilon \iota \pi \iota \mu \epsilon \nu o s$, Boдоєขтio七 $=$ ＇Oגovtiou ${ }^{3}$ ．Moreover，the digamma，had it had the fixed sound of $v$ ，would hardly have disappeared so generally from the language，nor indeed would it have been likely to have existed in it before，as the only spirant of this sort，without $f$ etc．：but conversely，if it was a semivocalic $u$ ，and the language in general gave up the $u$－sound，it is easy to understand，that it did not follow suit in undergoing the change to $\ddot{u}$ and consequently had to disappear．Accordingly there will be to a certain extent a connection between this sound－change and the disappearance of $F$ ，and we also see dialects such as the Bootian retaining
${ }^{1} \mathrm{ib} .204,221$（cp．the doubtful TITOTFEZOO 157，while in 215 we have TITOFTOX， 208 TITTFOD）．
${ }^{2}$ Ruhl no． 408 （the reading quite certain）．Many attempts at explana－ tion have been hazarded（as by liohl）， see however Bechtel Inschr．d．ion． Jial．p．39．A new instance of $F$ in a Naxian inscription has lately come to
light：Bull．de corr．hell．1888， 464 ：

${ }^{3} \Upsilon_{\epsilon \rho \gamma}{ }^{\prime}{ }^{\prime}$ Comp．in．678，col．iI．l． 5 ， 8；$\delta<a \beta \epsilon \iota \pi$ ．659，no．21，11；on Bo入o． є $\iota$ тio Meyer＂233．Cp．also Eretria ＇Е $\phi \eta \mu$ ．$\dot{\alpha} \rho \chi$ ．18ss， 83 ff．l． $171 \mathrm{c}{ }^{\circ} \mathrm{Oa} \lambda_{\iota}$－ $\delta l_{0}[v]$ nom．proprium $=F a \lambda \iota \delta l o v(' H \lambda \epsilon i o v)$ while ib． 182 a it is written＇A入ı $\delta(o v$.
the digamma with the true $u$ ，while those like the Attic and Asiatic－Ionic gave both of them up at an early period．If now the digamma was a semivowel，no inference can be made from the writing $a \mathrm{~F} \epsilon \mathrm{~F}$ for a modern Greek pronunciation，any more than in the case of the Oscan，which writes the corresponding diphthongs regularly $a v o v$ ，that is to say with the semivowel ${ }^{1}$ ． The interpolation of a digamma or of a $\beta$ representing a digamma after $\epsilon v$ when followed by a vowel which occurs regularly in Cyprus and occasionally in various localities：－ EưFáro pas，BaкєúFas Bœot．，Eỉßavסoos Dodona，Eủßá入кךs
 Cypriot ${ }^{2}$ ，admits of easy explanation．For in this case a semi－ vowel $v$ was developed out of a $u$ just as easily as a semivowel $y$ from an $i$ ，which likewise appears in Cyprus：a－no－sitja à $\nu o \sigma i a$ ， and in neighbouring Pamphylia，where two is are written： $\Delta I I A, E \Sigma T F E \Delta I I \Upsilon \Sigma$＇A $\sigma \pi \epsilon \in \nu \delta \iota o s$ ．The same holds good naturally not only of $\epsilon v$ but also of $v=u$ ；hence we have in Cyprus tu－ $v a-n o-i \delta u F a ́ \nu o \iota i . e . \delta \iota \delta o i \eta$（formed from $\Delta \Upsilon$ instead of $\Delta \mathrm{O}$ ），and on a Chalcidian vase 「apuFóvøs Г $\eta \rho v o ́ \nu \eta s^{3}$ ．In case however any should be inclined to infer from what has been cited，that the $v$ of these diphthongs tended from an early period in these dialects to harden into a consonant，it must at least not be forgotten，that it was precisely in the Cyprian dialect that the customary pro－ nunciation was really diphthongic；for the manner of writing is pa－si－le－u－s（e）ßaбı入єús o－na－sa－ko－ra－u＇O $\nu a \sigma a \gamma o ́ \rho a v$ ．The Cyprian dialect also shews by the coexistence of forms such as $e-v(e)-r e-t a-s a-t u$ and $e-u-v(e)-r e-t a-s a-t u$（＇̇ $\mathrm{F} \rho \eta \tau a ́ \sigma a \tau v, \epsilon \dot{u} \mathrm{~F} \rho \eta \tau \alpha \dot{\alpha}-$ $\sigma a \tau v$ i．e．$\dot{\omega} \mu о \lambda o ́ \gamma \eta \sigma \epsilon \nu$ ，from $\mathrm{F} \rho \dot{\eta} \tau a=\omega \mu о \lambda о \gamma i a, \rho \dot{\rho} \tau \rho a)^{4}$ ，how
 ＇EFpvo．${ }^{5}$ ，and similar instances are to be explained．In these the
${ }^{1}$ B．Kruczkiewicz，d．altlat．u． oskische Diphth．ou，Ztschr．f．öst． Gymn．1879， 1 ff．
${ }^{2}$ Dial．Inschr．648， 458 （cp．1040， 1146）；Karapanos Dodone Tab．34，3； Mitth．d．archaeolog．Inst．1．231；Dial． Inschr．71， 165 ff．（cp．e－u－va－ko－ro E $\dot{F} F a \gamma \dot{\rho} \rho \omega 153 \mathrm{ff}$ ．，e－u－va－te－vo－se Eưáy－ $\theta$ eos 161 ff ．）．On the other hand
ápıбтє́́rovta，Corcyra R．no．343，may just as well be an error for $\dot{\alpha} \rho \iota \sigma \tau \in \dot{o} \rho \nu \tau a$ as for－ev́fouta．
${ }^{3}$ Inscr．of Idalium，Dial．Inschr． 60 （Cauer ${ }^{2}$ no．472）l．6；C．I．Gr． 7582.
${ }^{4}$ Idalium l．c．4， 14.
${ }^{5}$ Ahrens D．A．p．37；Inser．of Eresus，Dial．Inschr． 281 c．

F was changed into a vowel before the $r$, for which process the Cyprian writing contains the middle step; the $\boldsymbol{v}$ however must by no means be considered as the representation in writing of a digamma still heard in pronunciation. In many cases a digamma in the middle of a word also has in the dialects become combined with the preceding vowel into a diphthong:

 Apollonius Dyskolos bears witness, that in $\epsilon \dot{\prime} a \delta \varepsilon$ and $\nu a \hat{i} o s$ the following $v$ combined with the $\hat{\varepsilon}_{\boldsymbol{\varepsilon}}^{a} a$ into a syllable ${ }^{1}$, he accordingly analysed $\epsilon \ddot{\nu}$-a $a \epsilon$, i.e. $e u$-ade not $e v$-ade. It is true that, if the $\epsilon v a v$ in such words were scanned short occasionally, as in
 could hardly be other than avata etc. ${ }^{3}$; why then are they written with $v$ ? But we have not the slightest proof, that in these cases the poets themselves did not really use the digamma; subsequent copyists have in general as far as possible removed the antiquated symbol from the texts. For the rest $a v \epsilon v$ were neither at the end nor the beginning of a word readily shortened, in marked contrast to the corresponding diphthongs with $\iota$; the examples cited with shortened $\epsilon v$ $\theta \eta \rho \in \tilde{́} \epsilon \iota$ and $\epsilon \dot{\breve{y}} \omega \nu 0$ are only from the rustic Hipponax ${ }^{4}$, and but little can be added from the authors that have come down to us: i$\chi^{\nu} \epsilon \dot{v} \omega \nu$ in Pindar, $Z \epsilon \check{\hat{v}} \dot{a} \lambda \epsilon \xi \hat{\eta} \tau o \rho$ in Sophocles ${ }^{5}$. Yet, if the pronunciation were $\breve{a} v \breve{e} v$, the syllable must have been scanned short where a vowel followed not in isolated instances but always and without exception. How comes it then, that a learned man like Bursian ${ }^{6}$ declares, that he finds no evidence, that the ancient Greeks did not pronounce $a v$ and $\varepsilon v$ as $a v$ and $e v$ ? The Greeks of to-day pronounce $\epsilon \beta$ o and $\epsilon v o$ precisely alike; the ancients are said si dis placet to have done the same,

[^27]${ }^{3}$ Curt. Etym. ${ }^{5} 569$.
${ }^{4}$ Schol. Hephrst. p. 107 Westph.
${ }^{5}$ Pind. Pyth. 8. 35; Soph. O. C. 143. So also $Z \epsilon \hat{v}$ ' $O \lambda$ रúvt $t \epsilon$ in the verse in Röll no. 75.
${ }^{6}$ Verhandl. der Philologenvers. im Frankfurt am Main (1861) S. 187.
but their poets have obstinately scanned the one as a Pyrrhic the other as a trochee. If then Bursian finds no evidence, this must not be ascribed to any real lack of material; whoever will take the trouble to cast about him, will find on this very point embarras de richesse. It would moreover be absolutely monstrous, if the pronunciation were as in modern Greek, that the Grammarians should so consistently reckon $a v \epsilon v$ as diphthongs, although they do not regard $a \beta \epsilon \beta$ as diphthongs; and they are not only counted as diphthongs, but as genuine diphthongs, different from $v \iota$, and not only as genuine diphthongs, but actually as diphthongs катà к $\hat{a} \sigma \iota \nu^{1}$. Whoever continues to see no impossibility here, but still hopes to find a way out of the difficulty, may proceed to explain how $\phi \epsilon \hat{v} \gamma \epsilon$, $Z \epsilon \hat{v}, \beta a \sigma \iota \lambda \epsilon \hat{v}$ etc. can have the circumflex accent. And why is AヘTO to be aftu, TOYTO on the other hand not toftu but tutu? Or how can the Rhetor Demetrius note the euphonious character of the name Ev̌ıos, because it consists entirely of vowels up to the last letter ${ }^{2}$ ? Of what avail against all this are such poor arguments as that drawn from AFYTO and the writing $\dot{a} \tau o \hat{v}$ and $\dot{\epsilon} a \tau o \hat{v}$ common after the 1st century B.c. for $a \dot{u} \tau o \hat{v}$ and $\dot{\varepsilon} a u \tau o \hat{v}^{3}$, which it is alleged can only be comprehended by supposing the pronunciation to have been avtu and not autu? As a matter of fact this word being troublesome and difficult to pronounce considering its frequency was very naturally made easy in the popular speech and finally lost even the $a$ (mod. Gr. $\tau 0 \hat{v} \tau \hat{\eta} \rho$ etc.) : but the most obvious mitigation of its difficulty even if the pronunciation were autu, could only be the rejection of the $u$. In the same way in popular pronunciation the German name Auguste loses its $u$, in late Latin too we find Agustus, Cladius, with which we may compare Agosto and Zaragoza (Caesaraugusta) and Italian Metaro and Pesaro (Metaurus, Pisaurum $)^{4}$. Accordingly au can very easily produce $a$;
${ }^{1}$ Cp. p. 22 above.
${ }^{2}$ Demetr. $\pi \cdot \dot{\epsilon} \rho \mu \eta \nu . \S 69$ (see p. 66).
${ }^{3}$ So in Greek text of Monum. Ancyr.; further instances from Delos Bull. de corr. hell. iII. 153; Lemnos ib. Iv. 543. Athens C. I. A. II. 478 c. $6 ; 487,5$, Add. $489{ }^{\text {b }}, 15$ (G. Meyer ${ }^{2}$
p. 137). E ETET $\Omega$ 光 $\sigma \tau a \iota$ aủr $̣ ̂$ Phryg. Bull. de corr. hell. viri. 251.
${ }^{4}$ Corssen Ausspr. 1. ${ }^{2}$ p. 664; W. Schmitz Beitr. zur lat. Sprachkunde 96 ff.; Diez Gr. 1. ${ }^{3}$ 171. Seelmann Ausspr. d. Lat. 223.
indeed if we are to believe the Greek philologist Psichari，we must absolutely recognize in àzós，which survives to this day dialectically，a proof of the original diphthongal pronunciation of $a v$ ；for，according to him，$\dot{a} \boldsymbol{\tau} \dot{\prime}$, cannot be explained from aftos ${ }^{1}$ ． Above all how could av change to o？Nevertheless this vowel has here and there in Doric been developed from av：калтө́тas
 spondingly in Cretan $\epsilon v$ becomes ov；廿oúठıa $\psi \in i ́ \delta \eta, ~ \epsilon ̇ \pi \imath \tau a ́-~$ $\delta o v \mu a^{s}$ ．That is to say in the case of $a v$ we have $\kappa \rho \hat{a} \sigma \iota s$ ，just as $a \iota$ becomes $\eta$ by $\kappa \rho \hat{a} \sigma \iota \varsigma$ ；in the case of $\epsilon \nu \dot{\epsilon} \pi \iota \kappa \rho \dot{\tau} \tau \epsilon \iota a$ ，just as $\iota$ arises from $\epsilon \iota$ by the same process．When furthermore we find in the centuries just preceding the Christian era，in various

 stand，how in pronunciation the $v$ which was really inconveni－ ent was got rid of，but not how $v$ should have been allowed to drop out just in those cases，where it stood between vowels ${ }^{5}$ ． Accordingly under the assumption，that $a v \epsilon v$ were au eu，our difficulties vanish on all sides；under the other assumption we are absolutely surrounded with difficulties，if not impossibilities．

${ }^{1}$ Psichari Rev．Crit．1887， 266.
${ }^{2}$ Ahrens D．D．185；G．Meyer ${ }^{2}$ p．139．On the other hand Bœotian à $\sigma a u t \hat{v}$ Dial．Inschr．385， 391.
${ }^{3}$ Ahrens D．D．187；G．Meyer ${ }^{2}$ p． 139 ；Bull．de corr．hell．Iv． 354.

4 Ahrens ib．188；Curtius Sächs． Gesellsch．d．IV．xvi．219；a very com－ plete collection of examples G．Meyer ${ }^{2}$ p． 137 ff．Even on the Lam．Styr． Röhl $372^{81}$＇Ea入кl $\delta \eta s$（carelessness？ cp．no．${ }^{36},{ }^{73},{ }^{104}$ etc．，where all sorts of letters are omitted）．C．I．Gr． 2909 （Mykale）$=$ Bechtel 144 mputav $\epsilon^{\omega} \omega \nu \tau o s$, trustworthy？Ib． $2107^{\mathrm{c}}$（Pantikapaion） ［ $\beta a \sigma \iota \lambda]$ द́o $\boldsymbol{\tau} o s$ ．（It must be remembered that Ionic EO＝Er．）But in 2691 de this $\beta a \sigma \iota \lambda$ ．is certainly not to be read， see Le Bas，and 2919 （Tralles，also with $\beta a \sigma$ ．）is a modern forgery，see Fröhner in Bechtel p． 148.
${ }^{5}$ Before consonants èvolas C．I．$A$ ． iI．616， 19 （ib．l． $16 \dot{\epsilon} \pi a \nu \hat{\epsilon} \sigma a \iota$ for $\bar{\epsilon} \pi \alpha \iota \nu$.$) ，$ $\dot{a} \pi \epsilon \lambda \epsilon \theta \epsilon \rho a$ Osann Syll．inscr．p．440．To these examples and a few others in Meyer Iadd $\pi 0 \lambda \nu \delta \epsilon \kappa \eta$ Pap．L．43，$\chi \epsilon \sigma \sigma \mu a \iota$ for $\chi \epsilon \dot{v} \sigma$ ．Kaibel 816 （Rome；Wagner de epigr．Gr．［Leipzig 1883］p．45）； ＇A $\xi a \nu \omega \nu$ Sterret Arch．Inst．of dmerica， iif．no．513，59s；По入úєктоs Rhodes Bull．de corr．h．ix． 115 ；Фá $\sigma \tau \varphi$ Phryg． ib．viII．246；but＇E $\theta$ v́raұos Styra Riohl 372， 114 must be cancelled，see Bechtel 19， 193.
${ }^{6}$ Ahrens $D$ ．$D$ ．III．（from the grammarians，at present no evidence from inscriptions，if $\dot{\alpha} \delta \epsilon v \phi$ al on the Gortynian inscrip．［v．18］is nothing more than a scribe＇s error）．On the supposed Thasian＇Au $\omega \omega \phi \hat{\omega} \nu=$＇A $\gamma \lambda a 0$－ $\phi \hat{\omega} \nu$ see Bechtel Thas．Inschr．p． 11.
au en as in Romance, where in most dialects the next step was for $a u$ to become $o$, though in some it has remained. In the same way we may explain Bœotian $\epsilon \cup ̈ \delta o \mu o s$ for $\epsilon \notin \delta \delta o \mu o s$ and $\epsilon \dot{v}$ боли́коута (if really existing) in Corcyra ${ }^{1}$. Similarly we find on some of the most faulty papyri $\dot{\rho} a \hat{v} \delta o s$ and $\dot{\rho} a \hat{v} \tau o s$ for $\dot{\rho} \dot{a} \beta \delta o s^{2}$. The Romance languages furnish excellent analogies on this point also: Spanish ciudad from civ(i)tat-, cautivo from captivus; Provençal paraula Fr. parole from parab(o)la, etc. ${ }^{3}$ As regards transliteration into and from other languages, Terentianus Maurus speaks of Latin $a u$ eu and Greek $a v \epsilon v$ as perfectly similar sounds ${ }^{4}$; accordingly Paulus, Aurelius are represented by $\Pi a \hat{v} \lambda o \varsigma, A \dot{v} \rho \dot{\eta} \lambda \iota o s$. If then in face of this Bursian has recourse to the argument, that we know nothing of the pronunciation of Latin au, that is only evading the matter; he must allow the logical conclusion: avspices, avt, avrum. This people are naturally not willing to $\mathrm{do}^{5}$, in spite of the famous Cauneas $=$ cave ne eas ${ }^{6}$; the fact is rather this, that $v$ was pronounced as a semi-vowel, like English $w$, and therefore readily combined with $a$ before consonants forming au: cau(e)neas, auceps from avis, aufero. It must be regretted for our purpose, that the Romans expressed consonantal and vowel $V$ with one symbol ; the poets however by scanning Agāue $\overline{\text { euvoe, Euander, have taken sufficient care that }}$
${ }^{1}$ Ahrens D. A. 174; C. I. Gr. 1563, 1845 (Dial. Inschr. 491, 17; 3206, 47).
${ }^{2}$ Papyr. L. 40, 41; a stronger instance still $\dot{\epsilon} \mu \beta \lambda \epsilon \dot{\sigma} \sigma a \nu \tau a s$ Papyr. Lond. (ed. Forshall) II. 11 for $\dot{\epsilon} \mu \beta \lambda \epsilon \notin a \nu \tau \alpha s$ i.e.. $\dot{\epsilon} \mu \beta \lambda \epsilon \in \pi \sigma a \nu \tau a s$. The author of the three documents is the hermit of the Serapeum, the Macedonian son of Ptolemy Glaukias.
${ }^{3}$ Diez I. 278, 281, 289 etc.
${ }^{4}$ Terent. Maur. v. 467 ff.: $A V$ et $E V$, quas sic habemus cum Grais communiter, corripi plerumque possunt(481) $A V$ tamen capere videtur saepe productum sonum, auspices cum dico et $a u r u m$, sive Graecus av̂pıov. mira nec putanda nobis talis alternatio est $\delta i$ -
$\chi$ povov quod $\alpha \lambda \phi a$ notum est, sicut $A$ nostratibus. (There is no information elsewhere on $\bar{a} u$, K. L. Schneider Gr. p. 58.) Some Roman grammarians wished to transliterate $a v \epsilon v$ by ay ey, Curt. Valerianus in Cassiodor. K. viI. 158.

5 Terent. M. says also very ex. pressly v. 480: hanc enim ( $E V$ ) si protrahamus, $A$ sonabit, $E$ et $V$, syllabam nec invenimus ex tribus vocalibus. The alleged testimony of Beda for the pronunciation avrum does not exist according to Keil's edition (vir. 228, 20).
${ }^{6}$ On this (Cic. de Div. II. 40, 84) vide Henrichsen p. 132.
the difference of pronunciation as contrasted with ăvus lĕvis should be evident. And supposing that $v$ had been doubled in these words we should find the writing euuoe (like Maiia). Moreover, had 'Atpeús been pronounced Atrefs or Atrevs, the Romans would never have declined these proper names by the second declension, as they do: Atrei Atreo Atreum ${ }^{1}$. The Greeks on their side represent consonantal $v$ by $o v$, even in cases where it is preceded by a, e: 'Октáovios, $\sum$ єovîpos; and side by side with this appears 'Oктácos ${ }^{2}$. Yet, if Greek avc had been avi, neither mutilation nor monstrous piling up of vowels would have been necessary; 'Oктav́cos, $£ є u \hat{\eta} \rho o s$ would have served their purpose. The latter mode of writing occurs after Hadrian's time ${ }^{3}$, although so late as the period of Septimius Severus the writing $\Sigma_{\text {eovipos }}$ far preponderates ${ }^{4}$. There was indeed nothing extraordinary in the representation of eve by $\epsilon v \eta$ i.e. eue, as in the biblical names $\Lambda \epsilon v i$, E $v a$, , $\Delta a v i \delta$, and this is quite wrongly used as an argument on their side by the followers of Reuchlin; the Copts also write $\boldsymbol{E r}_{\mathbf{2}} \boldsymbol{\lambda}$, i.e. Euha, where the $h$ can only be put in on account of the hiatus ${ }^{5}$. But the fact that Latin av $e v$ is written from the second century onwards with $a v \epsilon v$, though never before, suggests that the modern Greek pronunciation had at that time begun ${ }^{6}$, and naturally first before vowels. The only real difficulty in this question is to get any information as to the beginning of the present pronunciation; for the available material is in part of an absurdly questionable character. A bad Attic Epigram of the time of Hadrian, which has tormented our learned men quite unduly, gives $\epsilon^{\prime} \nu \epsilon \dot{\prime} \phi \dot{\eta} \beta o \iota \sigma \iota \pi a \lambda a i ́ \sigma \tau \rho a \iota[\mathrm{~s} ?]$, which is explained by Kaibel in such a manner, that he makes the author scan $\bar{\epsilon} \phi \eta^{\prime} \beta o \iota \sigma \iota$ from metrical necessity and represent this scansion by $\epsilon \dot{\nu} \phi=e f f$, while according to others maגaíat $\rho a \iota s$ is the right
${ }^{1}$ The vulgar pronunciation was Orphacus three syllables, as Aristaeus, Mar. Victorin. K. vi. 66 f., Seelmann 229.
${ }^{2}$ Dittenberger IIerm. vi. 302 ff.
${ }^{3}$ do. p. 306.
${ }^{4}$ p. 306, 3. In Sterret's inscrip-
tions (note 292) we find $\Sigma$ cou. and $\Phi \lambda$ áovios no. 279, 345. 426, 534, 536, 613, 620 ; $\Sigma \epsilon v .366,1.56$.
${ }^{5}$ Stern Kopt. Gr. p. 19. Also Hebrew Vau = English w, Stade Mebr. Gr. 65.
${ }^{6}$ So Dittenberger l. c.

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have pronounced kateske-vasan just as Fla-viano. But there can be no two opinions about $\kappa a \tau \epsilon \sigma \kappa \epsilon ́ \beta a \sigma \epsilon$ and $\dot{a} \pi \epsilon \lambda \epsilon \in \notin \tau \epsilon \rho o s$ on inscriptions of a period later but unfortunately not to be more accurately determined ${ }^{2}$. Moreover a Spanish Pablo points with certainty to a Greek Pavlos, since Paulus would give Polo. Ulfilas also represents $a v \epsilon v$ by av and aiv (Pavlus aivaggelyo), and this Gothic $v$ was certainly intended to represent a Greek spirant, although in Germanic words it was rather a semivowel, corresponding to the old German w. However Latin au also becomes av in Gothic: kavtsyo for cautio.

## II. Consonants.

## Section 21.

## Consonantal system in ancient and modern Greek.

As regards the pronunciation of the consonants Bursian again says, that he sees no reason in the case of any of them, except possibly $\beta$, to deviate from the modern Greek pronunciation. I on the contrary see many reasons in the case of many of them; indeed I find almost the whole sound-system different. The ancients, as is well known, distinguish between á $\phi \omega \nu a$ and $\dot{\eta} \mu i \phi \omega \nu a$, mutae and semivocales, a distinction which corresponds approximately to that which is made by modern phoneticians between explosives and fricatives. According to the ancients $\lambda \mu \nu \rho \sigma$, according to some also $\theta \phi \chi$, are $\dot{\eta} \mu i \phi \omega \nu a ; \beta \gamma \delta \pi \kappa \tau$ and according to the ordinary classification $\phi \chi \theta$ are mutes; three double-consonants are added, each formed by the combination of a mute and a semi-vowel, namely $\zeta \xi \psi$. This distribution according to the modern pronunciation appears in the following shape. Not only $\theta \phi \chi$, but also $\beta \delta \gamma$ and $\zeta$, are reckoned among the fricatives; $\pi \kappa \tau$ are the only explosive sounds, $\xi \psi$ the only double-consonants. There remain to be noted the loss of the spiritus asper, which was

[^28]not reckoned in the alphabet, but belonged to the fricatives, the new formation of the fricative $y$ not only from $\gamma$ but also from vowel $i$, in many cases diminishing the number of syllables (iatoós yatrós, moios pyos); lastly the universal abandonment of the lengthening of the consonants represented in writing by their doubling: $\dot{a} \lambda \lambda \dot{a}$ pronounced alá, $\mu \hat{\epsilon} \lambda \lambda \omega$ mè $l \mathscr{C}^{2}$. I think therefore, that the transformation of the sound-conditions could hardly have been greater, especially as even the explosive sounds which have remained have in certain cases a special pronunciation, conflicting with the writing.-We will begin our more detailed examination with the $\dot{\eta} \mu i \phi \omega \nu a$, under which head we shall reckon the spiritus asper.

## Section 22.

## Pronunciation of the nasals MNГ.

The Greeks have and had three nasal sounds, corresponding to the three classes of mutes: the labial nasal $\mu$, the dental $\nu$, and the guttural, which has no especial symbol in the alphabet and is represented by $\gamma$ ( $\dot{n}$ in Lepsius), called by certain grammarians $a^{\prime} \gamma \mu a$ or $a^{\prime} \gamma \gamma \mu a$. Only $\nu$ can be used as a final, but final $\nu$ was assimilated in the context to following consonants, i.e. it became $\mu$ or $\gamma$ respectively, and more
 $\dot{\epsilon} \sigma \tau \dot{\eta} \lambda \eta \iota^{2}$. Inscriptions preserve abundant testimony to this, and in many, at least before mutes and $\mu$, assimilation is consistently carried out ${ }^{3}$; even manuscript authority is not

[^29]wanting on some papyri ${ }^{1}$, and doubtless in the Attic and Macedonian periods this mode of writing was largely made use of in the texts of authors. But it appears, that in time the general tendency was, in the cultivated speech, to isolate words more and pronounce each distinctly by itself ${ }^{2}$, as is shewn in an especial degree by the dropping of elision and crasis. In any case very few traces of assimilation have remained in our best manuscripts, and in our present manner of writing none; the modern Greek popular pronunciation on the other hand retains certain traces of it, although in general it rejects final $\boldsymbol{\nu}$ altogether ${ }^{3}$. Conversely with us assimilation in the interior of words is regular, with the ancients this is not so much the case : it is not only that $\sigma v \nu \lambda a \mu \beta a ́ \nu \omega, \dot{\epsilon} \nu \kappa a \lambda \epsilon \hat{\iota} \nu$ and in general $\dot{\epsilon} \nu-\sigma \nu \nu-\pi a \nu$ - before all sounds is on papyri the more common
 $\ddot{\epsilon} \pi \epsilon \nu \psi \in \nu$ and such like appear at all periods with greater or less frequency ${ }^{5}$. To infer from this, as some have done, that the Greeks pronounced the nasal before consonants in the French way, is an extraordinary piece of perversity ${ }^{6}$; however


#### Abstract

${ }^{1}$ Pap. L. 2 (Dialectics) col. $2 \tau \hat{\omega} \mu$   $11 \tau \hat{\omega} \mu \pi o \iota \eta \tau \hat{\omega} \nu$. However it is not frequent on this careful and very old manuscript. Pap. 1 has only $\mu \dot{\varepsilon} \gamma \gamma \dot{\alpha} \rho$ col. 6 , and $\dot{\epsilon} \mu \beta \rho a \chi \epsilon \hat{\imath}$ in the acrostic v . 2. On the other hand a Herculanean ms. (Gompertz Wiener Akad. Bd. $83,87 \mathrm{ff}$.) which also shews $\epsilon \iota$ for $\eta \iota$ :   $\phi a \iota \nu о \mu \epsilon \nu \omega \nu$. тò $\lambda \epsilon \gamma \delta \mu \epsilon \nu b \mu$ rorє. катаүє$\lambda a \sigma \tau o \gamma \gamma \grave{\alpha} \rho$ etc. ${ }^{2}$ Hecht l. c. p. 32 cites (after G. Hermann de emend. rat. gr. gr. c. iv.) Dionys. $\pi$. $\sigma \nu \nu \theta$. p. 158 R.:-к $\lambda \nu \tau \dot{a} \nu$ $\pi \epsilon \mu \pi \epsilon \tau \epsilon$ in Pindar is an instance of harsh juxtaposition, since the dental $\nu$ and the labial $\pi$ do not agree well and do not fuse together at all into the beginning of a syllable.-According to Hecht assimilation ceases at Athens


soon after the beginning of the 3rd century b.c.
${ }^{3}$ Foy p. 24 (тò̀ тарака入̂̀ pron.

${ }^{4}$ On the mss. of Hypereides cp. my table of comparison p. xi. Pap. L. І. $11 \epsilon \nu \kappa \epsilon \kappa \lambda \epsilon \iota \kappa \epsilon \nu \dot{\epsilon} \nu \kappa \lambda \ell \nu \iota .18,19 \sigma \nu \nu \kappa a-$ $\tau a \delta u ́ v \epsilon \iota$. Philod. $\pi$. $\delta \rho \gamma$. III. $14 \dot{\epsilon} \nu \pi o \iota \epsilon \hat{\imath}$. xvil. $13 \pi \alpha ́ \nu \pi 0 \lambda \lambda a$.
$5^{\prime}$ 'O $\lambda u \nu \pi l a \quad$ ' $O \lambda u ́ v \pi$ ios is absolutely the usual spelling on the ancient Olympian inscriptions; assimilation in general was much more carelessly carried out in early times than later on. "E $\pi \epsilon \nu \psi \epsilon \nu$ C. I. A. in. 51, $\pi o \nu \pi \hat{\eta} \mathrm{~s} 603$; ${ }^{2} \nu \kappa v \rho a \quad 811 \mathrm{~B},{ }^{185}$; $\dot{\alpha} \nu \pi \epsilon \lambda \omega \nu$ constantly C. I. Gr. 1840 (Corcyra). On the ancient Attic inscr. vide Cauer p. 288 f . On Attic in general Meisterhans ed. 2, p. 85-8.
${ }^{6}$ J. Schmidt Vokalismus d. indog. Spr. p. 116 ff., who calls this a nasal vowel and transliterates miphe. G.
no doubt before $\beta \pi \phi \psi$ the $\mu$ was not pronounced as a full $m$ as at the beginning of a syllable or a word. We have express testimony to this, with reference not only to $\mu$ but to Latin $m^{1}$, and the same applies to the German pronunciation of $m p m b$, the closing of the lips not being completed before the sounds $p b$ have been reached. This then and the habit of dividing into syllables, causing the nasal to become in a certain degree final, gives a sufficient explanation of that manner of writing ${ }^{2}$. A yet more undefined pronunciation of the nasal, especially before labials, led to entire assimilation or even omission: Boeot. ${ }_{\epsilon}^{\prime} \pi \pi a \sigma \iota \varsigma={ }_{\epsilon}^{\epsilon} \mu \pi a \sigma \iota s\left({ }_{\epsilon}^{\epsilon} \gamma \kappa \tau \eta \sigma \iota \varsigma\right)$, 'O$\lambda u \pi \pi-$ $\pi i \chi a^{3}$; found sporadically in the most various localities 'Aфıтрíta, vú ${ }^{\prime} \eta$, 'Oגuтıкós, "A $\theta a \beta \beta o s$, etc. ${ }^{4}$ The most important phenomenon of this kind is the so-called $\nu \epsilon \bar{\epsilon} \phi \in \lambda$ $\kappa \nu \sigma \tau \iota \kappa o ́ v$, i.e. a nasal after-sound following final - $\epsilon(\epsilon \iota)$ and $-\iota$ (especially $\sigma \iota$ ), which was present in Attic and Ionic from an early period and thus made its way into the common language. This nasal, which naturally took a special colouring from the initial letter following, was not strong enough in all cases to exclude hiatus and thereby prevent synalœpha, but it

Meyer also opposes this view p. 284, with regard to Latin Seelmann 289 f.
${ }^{1}$ Mar. Victor. vi. 16 Keil: clari in studiis viri, qui aliquid de orthographia scripserunt, omnes fere aiunt inter $m$ et $n$ litteras mediam rocem, quae non abhorreat ab utraque littera, sed neutram proprie exprimat, tam nobis deesse quam Graecis (i.e. is unrepresented in writing); nam cum illi Samby $x$ scribant, nec $m$ exprimere nec $n$. Also in Latin spellings such as Septenbris Ponpeii, Schmitz Beitr. z. lat. Sprachkunde p. 66..
${ }^{2} \kappa \epsilon \kappa \rho \nu \nu \mu a \iota$ can only be explained by division into syllables (Athens), Kaibel Epigr. no. 96, калu $\mu a ́ \tau \omega \nu$ constantly Inscr. of Epidaurus 'E $\phi$. á $\rho \chi$. 1886 , p. $147 \mathrm{sqq} .$, l. $57 \mathrm{sqq} . \quad \epsilon \gamma \rho \alpha \nu$. $\mu a ́ \tau \epsilon \cup \in \nu$ C. I. $A$. I. $489^{\text {b }} 3$.
${ }^{3}$ The latter occurs in Bullet. de corr. hell. nir. 385 ( $\kappa \iota \iota \grave{\eta} ~ \delta \iota a ́ \lambda.) . ~ A l s o ~$
in Attic we have $\xi u \beta \beta a \dot{\lambda} \lambda \epsilon \sigma \theta a l$, C. I. A. iI. $52^{c}$; in Crete $a \phi \phi a \nu \omega$ a $\alpha \phi a \nu \omega$, $\pi о \pi \pi \alpha ́ \nu, \pi \in \rho \iota a \pi \pi \epsilon \in \tau \iota \xi$ Comparetti Mus. Ital. I. 147. G. Meyer ${ }^{2}$ p. 267.
${ }^{4}$ Ib. p. 284; J. Schmidt l. c. ; cp. Seelmann 273. This rejection of the nasal appears in Modèrn Greek too, but only before $\phi \theta \chi$ owing to a special ten-
 $\sigma u \chi \omega \rho \hat{\omega}$, Foy p. 79, 80. In the ancient language constant in Cyprian and Pamphylian, and before dentals and gutturals as well as labials.-On the Corinthian clay tablets (Röhl no. 20; Dial. Inschr. 3119 f.) ' $A \mu \phi \iota \tau \rho i \tau a$ is written twice with $\mu$, twice with $\nu$, and twice without a nasal. $\Sigma \phi i \xi$, for $\Sigma \phi i \gamma \xi$, c. I. Gr. 8139 (Athenian vase); $\tau u \chi$ ávo، and $\tau u \chi \chi^{a}$ vol Ion. Papyr. (cp. p. 44, n. 3 above). Addition of nasal also occurs in $\epsilon \mu \pi \rho^{\prime} a \tau \% ~ C . ~ I . ~ G r . ~ 1840, ~$ 2, cp. Seelmann 274.
often did effect this and as time went on its tendency to do so increased; in like manner it did not necessarily make length by position with a following consonant, but it could do so. Homer and after him the whole range of poetry has made free use of the means here presented for convenient versification :-
 the Attic inscriptions neglects to denote this weak sound more often at an early period than later on; indeed finally from the Macedonian period onwards the nasal was written regularly in all cases or at all events completely predominates ${ }^{1}$. Accordingly the pronunciation may have undergone a gradual transition from elegẽ estĩ to a tolerably defined elegen estin. Our custom of placing the $\nu \dot{\xi} \phi \in \lambda \kappa$. in prose to prevent hiatus and in all cases where there is a definite pause, but elsewhere of leaving it out, has no foundation whatsoever.

Initial $\mu$ on the other hand in contrast to its weak pronunciation when final or medial is in isolated instances written with aspiration: MHELAPEI, MHEIEIOE, Méígcos ${ }^{2}$; in Latin also initial $m$ had its fullest sound, and the aspiration of initial liquids appears also in Welsh ${ }^{3}$. Some would assume the guttural nasal, written $\gamma$, before $\mu$ and $\nu$, on account of the traditional name agma; for in this name, a transposition of $\gamma \dot{\alpha} \mu \mu a$, the sound itself ought according to them to occur ${ }^{4}$.
${ }^{1}$ Meisterhans ed. 2, p. 88-9, based on the valuable treatise of Hedde Maassen : de litera $\nu$ Graecorum paragogica quaest. cpigraphicae, Leipziger Studien 18. p. 1 ff .-The use of $\nu \dot{\epsilon} \phi$. on Ionic inscrip. contrasts sharply with our texts of Herodotus (Ermann Curt. Stud. v. 278) ; e.g. the longer Chian inscrip. (Bechtel 174) and that of Halicarnassus (238) have $\nu$ in all cases.-Cp. also Rh. Mus. xlim. 279. The name $\dot{\epsilon} \phi \epsilon \lambda \kappa$. is founded on an error, Maassen p. 43: the original mode of expression is $\tau \dot{\boldsymbol{\epsilon}} \bar{\epsilon} \dot{\epsilon} \phi \epsilon \lambda \kappa \cup \sigma \tau \iota \kappa \delta \nu$ $\dot{\epsilon} \sigma \tau \iota \tau 0 \hat{u} \bar{\nu}$.

2 Ruhl no. 514, 344 ; also on the inscript. of Sillyon in Pamphylia (ib. 505 Dial. Inschr. 1266) I. 10, 21, 23

MHO; C. I. Gr. 7382 where MHO $\mathcal{M O}$ must be read with Stuart for Mao廿os. G. Meyer ${ }^{2}$ § 244 Note. (Cp. Dittenberger Jahresber. f. AW. xxxir. 146.)
${ }^{3}$ Prisc. I. § 36 ; Lepsius Stand. Alphab. p. 172.

4 Westphal Criech. Gramm. 1. 1, 17; Brugman Curt. Stud. iv. 103. Evidence as regards agma is furnished by Varro in Prisc. r. § 39 (A. Wilmanns de M. Ter. Varr. libris gramm. p. 221): ut Ion scribit quinta et vicesima est litera, quam vocant agma (ărrua ten Brink and Wiln.), cuius forma nulla est ct vox communis est Graecis et Latinis, ut his verbis: aggulus aggens agguilla iggerunt. Subsequently be adds to these agceps agcora; neither he nor any

For this very reason however others emend äy $\gamma \mu a$. For our part we are inclined to pronounce throughout, riy
 receive an immediate explanation; moreover $\gamma \nu \gamma \mu$, although combinations of mute with liquid, always make syllables long by position. Still the latter is the case also with $\delta \mu \delta \nu$, and on the papyrus $\pi \rho \hat{a}-\gamma \mu a$ is thus divided where there is a break of the line, not $\pi \rho a \hat{\gamma}-\mu a^{1}$. This question hardly admits of decision; certainly we cannot regard as decisive the softening of $\dot{\epsilon} \kappa$ to $\dot{\epsilon} \gamma$ before $\mu$ and $\nu$, for this softening takes place before other liquids. Modern Greek has in such cases no nasal, omission on the other hand occurs as in rivoual: $\pi \rho a \hat{\mu} \mu a$ (prama) $\pi \rho \hat{a} \gamma \mu a^{2}$.

## Section 23.

## Pronunciation of P (and $\Lambda$ ).

On the pronunciation of $\lambda$ there is nothing to note except that it too appears in a few instances initially with an aspirate; $\Lambda$ HABON $\lambda a \beta \omega^{\prime} \nu^{3}, ~$ AHEON. P according to the description given by Dionysius was pronounced with the tip of the tongue ${ }^{4}$, and accordingly was as in modern Greek ${ }^{5}$ dental, not guttural. Singularly enough its aspiration when initial or doubled is supported by only one example on inscriptions PHOFAIEI of an ancient Corcyrean epitaph ${ }^{6}$; it is however vouched for by Latin transliterations as well as by the Grammarians:
other Grammarian says anything about the occurrence of the same sound before $m n$, and in the latter case $g$ is written in Latin, while in the former the usual way is to write $n$. On Latin $g n \mathrm{cp}$. K. L. Schneider Gr. 1. 272 f. ; Corssen i. 106 ; Rumpelt p. 99.
${ }^{1}$ Hypereid. 1. 11, 5; 27, 9; 29, 8; 34, 28; iI. 3, 7 etc.; never divided otherwise in this manuscript.-'Iá$\mu a \tau a$ of Epidaurus ( ${ }^{(\mathrm{E} \phi \eta \mu .1883)} 1$. $49 \sigma \tau i-\gamma \mu a \tau a$.-Inscr. of Antiochus (Ber. Berl. Akad. 1883, 49 f.) $\mathrm{Iv}^{\mathrm{a}} .14$ סlatєтa- $\gamma \mu \epsilon \nu a l s$.

[^30]Rhesus, Pyrrlus, which on their part shew also, that the $h$ was heard after the $r^{1}$. Aspiration of initial liquids is, not to speak of other languages, not unknown even in German ${ }^{2}$, especially where we speak with much emphasis; in Greek
 Tanagra ${ }^{3}$. Analogies for the different values of $\rho$ are furnished by Spanish, where also $r$ when initial and when doubled in the middle of a word has a quite different and much more emphatic sound than medial $r$ alone. Modern Greek, which has lost not only the aspirate but also the doubling of medial consonants, appears certainly to know no such distinction. The ancient language on the other hand not only as a rule wrote double $\rho^{4}$ where initial $\rho$ either in composition or by reason of the augment became internal, but also treated initial $\rho$ itself from a prosodial point of view as a double-consonant: íca каì тà
 other hand its aspiration after an aspirate, as taught by some

${ }^{1}$ Varro's doubt whether $h r$ ought not to be written (or again retor without $h$ ) was grounded on grammatical theories. Priscian I. § 25; Cassiodorius K. vir. p. 152. The Copts indeed write hretor Stern Kopt. Gr. p. 19, and Bechtel Inschr. des ion. Dial. p. 133 would take AHPEI $\Omega$ N (Amorgos no. 228) as 'A $\dot{\rho} \sigma l \omega \nu, \Phi H P A H \Sigma O$ (Naxos no. 23) as Ф ${ }^{2}$ íh $\sigma o v$.
${ }^{2}$ [This emphatic pronunciation in German is described by Dr Blass as follows:-We are accustomed to pronounce (in emphasis) t-hage (Tage), n-hein (nein), s-hage (sage), and even 'haber (aber), that is to say we pronounce the spiritus asper after the lenis.]
${ }^{3}$ Röhl no. 131. Dial. Inschr. 876.
${ }^{4}$ It is true that this rule is often violated; for instance mapapúpara in the att. Sceurkunden as C. I. $A$. 74 d, $9,16,38,60,78$ ctc. ; катара́ктоия C. I. A. ı. 167 ; ámo $\rho a \nu \tau \dot{\eta} \rho i o \nu ~ e t c ., ~ s . ~$

Cauer Curt. Studien virl. 282, Meisterh. ed. 2, p. 73, n. 675. Doubling of other liquids in similar position : 'A $\rho \chi \epsilon \nu \nu \eta i \delta o v$ Seeurk. $809 \mathrm{~d}, 29 \mathrm{f}$; inscr. from Eleusis 'E $\phi . \dot{\alpha} \rho \chi .1889$, p. 49 ff . $\beta, 20 \dot{a} \rho \tau \dot{\eta} \mu a \tau a \rho \rho v \mu o i s ~(i . e . ~ \dot{\alpha} \rho \tau \dot{\eta} \mu \alpha \tau a$ $\dot{\rho} \nu \mu o i s) ; \dot{\alpha} \mu \phi \lambda \lambda \epsilon \gamma \sigma \mu \dot{\epsilon} \nu \omega \nu$ Crete Bull. de corr. hell. ıII. 290. Cp. G. Meyer ${ }^{2}$ § 289.
${ }^{5}$ Cp. rappıфє $\tau \tau$ on a papyrus of the Ptolemaic era, Wessely Wien. Stud. 1886 p. 205 ; in Homer forms like
 Hom. Tcxtkr. 389, though Aristarchus certainly wrote not only $\tau o ́ \dot{\rho} a$, but $\delta \iota a \rho a l \sigma \epsilon \iota(---), \pi 0 \lambda \dot{\rho} \rho \eta \nu \epsilon s$. The same fluctuation however appears in Homer in the case of the other liquids.
${ }^{6}$ B. A. II. 693 : ol à $\rho \chi a \hat{i} o c ~ \gamma \rho a \mu \mu a$ -





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is found very frequently on old dialectic inscriptions; in isolated cases even on Attic inscriptions: $\Lambda \epsilon ́ \sigma \sigma \beta o v, \gamma \rho a ́ \psi a \sigma \sigma \theta a \iota$, єi $\sigma$ $\sigma \tau r^{\prime} \nu$, and instances continue to be found down to a late period ${ }^{1}$. Boeckh ${ }^{2}$ was inclined to regard this as an indication of the sound š, English sh, and his suggestion has found many to repeat it; it is however as unwarranted as it is unmaintainable and is at present given up ${ }^{3}$. The sound $\check{s}$ is unknown even in cultivated modern Greek; if the ancients had possessed it, they would doubtless have made use of the proper Phœnician symbol to express it.

## SECTION 25.

## Spiritus asper.

At this point we must treat of the rough breathing, which also belongs to the fricatives or semivocales, although the ancients did not reckon it in among the letters at all. Besides the Æolians of Asia Minor the Asiatic Ionians ${ }^{4}$ lacked the breathing, and the alphabet of the latter having the value $\underline{e}$ for $H$ became that used throughout the Greek world. In Magna Graecia however after the adoption of the Ionian alphabet a new symbol was employed for $h$, namely the divided $\mathrm{H}^{5}$, and this very symbol was used by the Grammarians perhaps as early as from Aristotle's time onwards ${ }^{6}$, not however written in
${ }^{1}$ G. Meyer ${ }^{2}$ p. 225 f. Attic e.g.
 233, 28 ; $\Lambda$ '́ $\sigma \sigma \beta$ ou II. $52^{\text {c }}$; $\gamma \rho a ́ \psi a \sigma \sigma \theta a \iota$
 $272,573^{\mathrm{b}}$; even фi入oтı $\mu \omega \sigma \sigma \kappa a l$ 603. Meisterh. ${ }^{2}$ p. 68-9. In a few isolated cases $\kappa$ is similarly doubled: "Екктш Corinth. Vase Dial. Inschr. 3122; $\dot{\epsilon} \kappa \kappa \tau \hat{\omega} \nu$ С. I. $A$. ІІ. $314 ; \dot{\epsilon} \kappa \kappa \tau[0] \hat{\nu} 1060$;
 be Röhl no. 284; є̀кктаúvas and 'А $\sigma \kappa \lambda a \pi t \omega \hat{\omega}$ Elateia Bull. de corr. h. x. 380 ; with division of syllables at end of line $\dot{\epsilon} \kappa \chi^{\theta \epsilon} \mu a r a($ i.e. $\dot{\epsilon} \chi \theta, \dot{\epsilon} \kappa \theta$.) Cos, Bull. de corr. h. vi. 2491.59 f.
${ }^{2}$ Boeckh on C. I. Gr. I. 25.
${ }^{3}$ F'or instance by G. Meyer 1.c. I
have treated this point exhaustively in the Satura philologa H. Sauppio oblata p. 121. See also Seelmann 144 f. on the same point in Latin.
${ }^{4}$ Giese deol. Dial. 380 ff .
${ }^{5}$ Occurring on inscr. of Tarentum and Heraclea. Also on Vases, so C. I. Gr. 7612, 8351, 8391 ; but トI P PIE $\Omega \mathrm{X}$ Tralles C. I. Gr. 2919 does not exist; see p. 80, n. 4.
${ }^{6}$ Aristot. El. Soph. p. 177 b 3 on öpos and bpos: : ̇̀ $\mu \dot{\epsilon} \nu$ roîs $\gamma \in \gamma \rho a \mu \mu \dot{\epsilon} \nu \quad$ ors


 дóneva où тaùtá.
the same line with the other letters, but written above as a diacritic mark A. At a subsequent period the corresponding symbol -1 was invented for the spiritus lenis, i.e. the absence of the breathing ${ }^{1}$, and the rounding of these symbols gave our present mode of representing the spiritus. Its representation in Latin shews that the $h$ was still heard in the Hellenistic dialect; moreover the aspiration of the tenuis in elision was consistently observed, although not always in a way identical with our own; for we find for example, $\mu \in \theta o \pi \omega \rho \iota \nu o ́ s, \kappa a \theta^{\prime} \in \tau о \varsigma$ and $\delta \omega \delta \epsilon \chi \epsilon ́ \tau \eta \varsigma, \dot{\epsilon} \phi ' \bar{\prime} \sigma \eta, a \phi \neq \epsilon ́ \sigma \tau a \lambda \kappa a^{2}$. Similar fluctuations are well known in Latin from the first century b.c. and onwards both in the case of consonants and vowels ${ }^{3}$; Catullus' poem on Arrius and his chommoda, hinsidiae illustrates this best ${ }^{4}$. In the case of consonants aspiration came in about this time from the Greek, in the case of vowels it must conversely from this time onwards have lost ground in the popular language, so that it was in the cultivated language that uncertainty prevailed, where to pronounce and write $h$ and where not. That educated people continued to pronounce the $h$ even during the Empire is shewn, to take an example, by a passage of Quintilian, where he laughs at those people as affected, who greet one another with $a v \bar{e}$ instead of havĕ on account of the derivation from avēre ${ }^{5}$.

[^31]sumption, that Greeks or Romans pronounced the unaspirated vowels differently from the Germanic and Romance peoples of to-day.
${ }^{2}$ G. Meyer ${ }^{2}$ p. 244. Dittenberger Syll. Ind. p. 781 f. 784. M $\epsilon \theta$ or. is the regular spelling Pap. L. 1 ; $\delta \omega \delta \epsilon \chi \epsilon \tau \eta s$ Kaibel Epigr. 112, cp. 190, 205, 222 ; Rich. Wagner de epigr. gr. (Lpz. 1883) p. 90 ; on $\dot{\alpha} \phi \epsilon \sigma \tau a \lambda \kappa \alpha$ etc. cp. Keil Schedae epigr. p. 7 ff .
${ }^{3}$ Corssen Ausspr. r. ${ }^{2} 104$.
${ }^{4}$ Catullus carm. 84.
${ }^{5}$ Quintil. 1. 6, 21 : multum enim litteratus, qui sine aspiratione et producta secunda syllaba salutarit (avere est enim). In the whole section he is speaking only of correctness of pronun-

But after the second half of the second century a.d. $h$ in inscriptions is more and more frequently wrongly put in and wrongly omitted ${ }^{1}$; the letter was therefore evidently disappearing, and the same development took place in Greek. The Copts, it is true, continue to represent the spiritus in Greek loan-words almost without exception with their $2(h)$ : hoste, hina, hote etc. ${ }^{2}$; it cannot therefore have disappeared in the second century. The cultivated pronunciation certainly retained it much longer, just as in Latin, where we find Augustine testifying to the offence taken in his time at pronunciations such as ominem ${ }^{3}$. Modern Greek however knows the aspiration no more than the Romance languages; for the French owe their $h$ aspiré to the Germans. If however we infer from the growing uncertainty in the use of the symbol in Latin that the sound was beginning to disappear, are we not bound to make the same inference with regard to the Attic of the fifth century B.c.? For here too the cases are very numerous, where H ought to stand and does not4. The converse of this is of less frequent occurrence, except on one inscription which was evidently cut by a foreigner, where $\dot{\epsilon} \nu$, oiк $\hat{\omega} \nu$ etc. are written in the most surprising manner ${ }^{5}$. It has indeed actually been maintained, that the breathing was no longer heard among the Athenians of the 4th century ${ }^{6}$, and this view receives support from passages of Aristotle, where the
ciation; he comes to orthography in c. 7. The question is also settled by c. $5,17 \mathrm{ff}$. ; Vel. Long. K. vir. 68 f., etc.
${ }^{1}$ Corssen l. c. p. 110 ; Seelmann p. 265 f . (the wall inscrip. of Pompeii shew the same uncertainty as early as the 1 st cent., cp. on the confusion of $a e$ and $e$ in the same, p. 69, n. 1).
${ }^{2}$ Stern Kopt. Gr. p. 19.
${ }^{3}$ August. Confess. 1. c. 18 § 29 (Seelmann p. 265).-Among Greeks compare (Oros) Prolegomen. Hephaest. p. 93 W.: $\gamma / \nu \in \tau a \iota \beta \rho a \delta u \tau \eta ́ s t \iota s ~ t o v ̂ ~ \chi \rho o ́ \nu o v, ~$
 o乡cias ( $\lambda o s$ in кa入ós longer than in $\phi(\lambda o s)$.
${ }^{4}$ Collected by Cauer C. St. virir.

232 ff . On the inscript. of Eleusis found subsequently (C.I. A. iv. 27 b ) the symbol is omitted about once in every ten instances. Bull. de corr. h. xir. 131 it is always written except in composition; C.I. A. Iv. $53^{\text {a }}$ (B.c. 418/7) only in the word icpóv, being left out everywhere else, evidently owing to the influence of the Ionic writing, traces of which appear there in other instances.
${ }^{5}$ C. I. A. 1. 324. ('A $\theta \eta \nu a \hat{o}$ os Bull. v. 178 (on vase) is krasis, cp. C. I. A. i. 423 ff .)
${ }^{6}$ v. Schiitz Mist. alphabet. Att. p. 54 ff.; G. Meyer Gr. ${ }^{2}$ p. 242.

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of Heraclea we find $i^{\prime} \sigma o s$ and ${ }^{\imath} \sigma o s$ side by side. But if the breathing began to disappear at an early period in all the dialects, it could not very well have continued to exist in the Alexandrine and Roman periods in the common Hellenistic language. We must therefore seek for some other explanation; such an explanation is furnished by the weakness of the breathing, which also serves to make the great inconsistency and capriciousness in the aspiration of isolated words more intelligible. We say íттоs but Глаи́кıттоs $\Lambda є \dot{\kappa} \kappa \iota \pi \pi о \varsigma$, and as the cognate languages shew, the spiritus has no etymological warrant whatever. We find too side by side ä $\boldsymbol{\gamma} \omega$ (in Locrian
 there is no etymological reason for the fact, that initial $v$ is always aspirated ${ }^{2}$. This weakness of pronunciation also made it natural, that the Athenians and most of the other stems on adopting the Ionic alphabet should not trouble themselves about any new symbol for the sound of the breathing. In the interior of words in Laconian and other dialects the
 $\mathrm{F}_{\eta \dot{\epsilon}}=\dot{\epsilon} \pi o i \eta \sigma \epsilon^{2}$; according to the Grammarians the Attic dialect knew this internal spiritus only in the foreign word $\tau a \omega_{5} 5^{3}$. In composition it was not generally written in Attica ${ }^{4}$, on the Heraclean tables not always ${ }^{5}$; Latin as a rule represents it even here : exhedra (exedra), parhippus, Panhormus, Euhemerus ${ }^{6}$. It had undoubtedly in this position a still slighter sound than at the beginning of words; the Alexandrine Grammarians themselves, who wrote the 'interaspiration' in the texts of the poets for the sake of clearness, renounced the rough breathing, if the real significance of the word lying hidden in the compound appeared


[^32]KAӨHAПEP 18. 51^, 43), although Giese Aeol. Dial. p. 333 maintains, that the aspirate in this case was quite inaudible.
${ }^{5} \pi a \rho \epsilon \xi o ́ \nu \tau \iota$ once by $\pi a \rho \dot{\xi} \xi^{\prime} \nu \tau 1$ (the preposition in this dialect took the form $\pi a^{\prime} \rho$ ).
${ }^{6}$ K. L. Schncider p. 192 f. Also Coptic ahoratos, Stern Kopt. Gr. p. 19.

## Section 26.

## Pronunciation of the Tenues.

Among the nine mutes the Tenues (i.e. $\psi i \lambda \dot{a}$, the surd letters) have on the whole retained their pronunciation. At the present day however the media appears in pronunciation after
 àáyкך anangazo anangí ${ }^{1}$. The same thing takes place in close combination of words: tò $\pi o ́ \lambda \epsilon \epsilon \rho \nu$ tom bólemo, тò̀ тótò ton dópo, тò̀ ко́ $\sigma \mu о \nu$ toin gбzmo ${ }^{2}$. The assumption of a similar pronunciation in ancient Greek leads at once to pure impossibilities: how could the ancients have kept $\bar{\epsilon} \nu \tau o ́ s$ and
 certainly did? For we are not entitled to appeal to the Aristotelian $\epsilon \nu \tau \epsilon \lambda \epsilon \chi \epsilon \epsilon \iota$ by the side of $\epsilon \bar{\epsilon} \delta \epsilon \lambda \epsilon \chi \dot{\eta}^{\prime} s$ : the word must have been $\dot{\epsilon} \nu \delta \epsilon \lambda \epsilon \in \chi \epsilon \iota a$, but being of infrequent usage it was remodelled on the analogy of $\tau \epsilon \in \lambda o s$. Next we are confronted with $\dot{i} \mu \pi \lambda a \kappa \epsilon i \nu$ and $\dot{\alpha} \mu \beta \lambda a \kappa \epsilon i v$, ' $А \mu \pi \rho a \kappa i ́ a$ and ' $\mathrm{A} \mu$ $\beta \rho a \kappa i ́ a$, finally the Aristophanic pun $\beta \lambda \epsilon \epsilon \pi \epsilon \iota \nu \mathrm{B} a \lambda \lambda \eta^{\prime} \nu a \delta \epsilon$ ( $\Pi a \lambda-$ $\lambda \eta \nu a ́ \delta \epsilon, \Pi a \lambda \lambda \eta^{\prime} \nu \eta$ and $\left.\beta \dot{a} \lambda \lambda \epsilon \iota \nu\right)^{3}$, those who cite these instances not perceiving that the very infrequency with which they occur contains a full refutation of the inference they draw. For tenuis and media or as we now say surd and sonant explosives approximate so closely in sound, that to say nothing of the license of word-plays, actual instances of interchange are not wanting in Greek any more than in other languages, for instance on Attic inscriptions тóт $\omega$ for $\delta o ́ \tau \omega$, à $\gamma \rho о \pi o ́ \lambda \epsilon \iota, ~ М \epsilon \kappa а \kappa \lambda ~ \grave{\eta} s{ }^{4}$. Above all in Egypt $\tau$ and $\delta$ could not be kept distinct owing to the peculiarity of the national language, which did not possess a $d$, although it had $b$; accordingly mistakes such as $\tau i \delta \nu \mu o \iota$, тóde for $\tau \dot{\prime} \tau \epsilon$, Eüтo ${ }^{\circ}$ os are among the commonest on papyri ${ }^{5}$.

[^33]Curtius Gött. Nachr. 1857 p. 303.
${ }^{4}$ C. I. A. II. 603, 272. Bull. de corr. h. in. 552 (ib. iII. 64 Scyros $k v \nu \eta$ for $\gamma v \nu \eta$ ).
${ }^{5}$ Praefat. Hyperid. p. xvir.

But the position in which the sound occurs, makes in these cases no difference whatever. Apart from this in the case of $k$ a twofold pronunciation is current in modern Greek ${ }^{1}$ : guttural before consonants and before $a o u$, and inclining to palatal before $e i$ (i.e. $k^{\prime}$ according to Lepsius' alphabet, being to $k$ as $c h$ in $i c h$ is to $c h$ in $a c h$ ). Consequently in the кai of the present day a sound is heard somewhat like kiye, in which the $k$ is produced so far forward on the palate, that it approximates to $t$. In many cases this palatal $k$ like the c in Romance was and is further developed to $\mathrm{ch} t \mathrm{t}$, so that Psichari gives four further pronunciations for кє каi:-chye che tsye tse ${ }^{2}$, and this pronunciation as Italian $c e$, although at the present day it is not considered worthy of imitation ${ }^{3}$, nevertheless made itself distinctly felt side by side with the other at the period of the revival of letters ${ }^{4}$. Something analogous to $k k^{\prime}$ might be found in ancient Greek in the contiguous use of 9 (koppa) and K ; this however seems in point of fact to have been more a matter of orthography than pronunciation. The syllables ко кро кто were written with 9 , because the letter was called koppa, $\kappa a \kappa \rho a$ etc. were on the other hand written with kappa for the same reason ${ }^{5}$; the rest of the work fell to the share of the latter, as standing before the other in the alphabet, except where a $u$ still retaining its proper $u$-sound appeared to demand similar treatment to $o^{6}$. Subsequently $Y$ was given up as superfluous, just as $k$ in Latin gave place to $c$.

## Section 27.

Aspirates and mediae; contrast between ancient and modern. Greek.

The pronunciation of the aspirates $\Theta \Phi \mathrm{X}$ is one of the most difficult points. The name aspirata littera, סaб̀̀ $\gamma \rho \dot{\alpha} \mu \mu a$ points
${ }^{1}$ Foy p. 5.
${ }_{2}$ Psichari Rev. Crit. 1887 p. 265.
${ }^{3}$ Foy p. 50.
${ }^{4}$ Cp. the edict of Chancellor Gardiner (p. 3 above), which on this point allows a certain licence; Smith Sylloge
p. 530.
${ }^{5}$ BOYAL (?) Baot. Riohl 183 stands alone; Meister Di/ll.-Inschr. 881 $\beta \omega[\lambda]$ ass?
${ }^{6} \mathrm{Cp}$. p. 35 above.

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system as this transferred to the ancient language must of necessity alter its character most violently. It is however perfectly impossible to transfer it. For all spirants are fricatives, that is according to the ancient nomenclature $\dot{\eta} \mu i \phi \omega \nu a$, having even without the addition of a vowel a certain perceptible sound ; but in ancient Greek $\beta \gamma \delta$ are always and $\phi \chi{ }^{\theta}$ generally reckoned among the ä $\phi \omega \nu a$. That the latter were by some, apparently by the Stoics, considered as $\dot{\eta} \mu i \phi \omega \nu a^{1}$, is fully explained by the fact, that the added breathing is of itself a $\dot{\eta} \mu i \phi \omega \nu o \nu$; in like manner $\xi \psi \zeta$ are reckoned as $\dot{\eta} \mu i \phi \omega \nu a$ owing to the $\sigma$ which forms one of their component parts. In the modern Greek pronunciation on the contrary no one could ever maintain these letters to be mutes. Moreover Dionysius of Halicarnassus gives a closer description of the pronunciation ${ }^{2}$; he says that in the case of $\pi \beta \phi$ the mouth is shut and then suddenly opened, in like manner in $\tau \theta \delta$ the tongue is pressed against the teeth ; in $\kappa \chi \gamma$ it is raised to the palate, and there is no further distinction between these letters according to him beyond that of the breathing ${ }^{3}$. Aristides Quintilianus also writing in the third century expresses himself to the same effect:-in the case of the media $\beta$ and the related sounds $\pi$ and $\phi$ the stream of air, he says; breaks through the closure of the lips in the centre, and so on, he too making the only difference between the related sounds to consist in the fact, that the tenues were articulated in the front part of the
${ }^{1}$ Sest. Empir. p. 621 f. represents the aspirates as $\dot{\eta} \mu(\phi \omega \nu \alpha$, adding, that 'some' reckon them as ä $\phi \omega \nu$; Priscian r. 14 says conversely: hic quoque error a quibusdam antiquis Graecorum grammaticis invasit Latinos, qui $\phi$ et $\theta$ et $\chi$ semivocales putabant, nulla alia causa, nisi quod spiritus in eis abundet, inducti. The Stoics according to Dion. L. vir. 57 reckoned only six ${ }^{\alpha} \phi \omega \nu a, \beta \gamma \delta \kappa \pi \tau$. Dionys. Halic., Dion. Thrax etc. reckon the aspirates as mute without expressing any doubt on the subject.

[^34]$\beta$ are pronounced, örav tov̂ $\sigma \tau \delta \mu a \tau o s$ $\pi \iota \epsilon \sigma \theta \epsilon \nu \tau 0 s$ тд $\pi \rho о \beta a \lambda \lambda \dot{\mu} \mu \nu \nu \nu$ єкк $\tau \hat{\eta} \bar{s}$








 $\delta \iota a \phi \ell \rho о \nu \tau a \tau \hat{\varphi} \sigma \chi \dot{\eta} \mu a \tau \iota \dot{a} \lambda \lambda \eta \lambda \omega \nu, \pi \lambda \eta \eta_{\nu}$

 à $\mu$ фoiv.
mouth and softly, the aspirates energetically from the larynx, the mediae with moderate force in the central part ${ }^{1}$. Accordingly all these sounds were instantaneous and explosive; $f$ ch etc. on the other hand are fricatives, being produced by a contraction not amounting to complete closure of the vocal passage ; for neither are the lips closed in producing $f f$ nor in making the $t h$-sound is the tongue pressed against the teeth, but only brought near. It is then already placed beyond doubt and will receive further confirmation, that the aspirates and the mediae during the classical period had a different pronunciation from that now in vogue.

## SECTION 28.

## Pronunciation of the Aspirates.

To understand what the aspirates really are, we must turn our attention to the living oriental languages, especially those of India. There exist in Sanskrit as in the derived languages combinations both of the tenuis with the breathing: $k h$ th $p h$, aud of the media : gh dh bh; both classes are considered in the alphabet as simple sounds, but are really formed by a combination of mute with breathing. Germans in general pronounce their so-called tenues when initial with a similar breathing, generally without being themselves aware of it; other nations however, as for instance the Hindoos, perceive the distinction between their own true tenues, and the approximation to their own aspirates. We must then, as G. Curtius especially has shewn ${ }^{2}$, consider this to have been the character of the Greek aspirates, their prior member being a tenuis: $k p t$.

[^35][^36]Out of this a spirant has been developed by assimilation and fusion of the elements, the breathing according to the view usually held being changed to a spirant of a nature homogencous to the tenuis ( $p f$ or $p v, t \theta, l i \chi$ ), the latter finally crowding out the tenuis. It is still a matter of dispute, whether this assumed intermediate pronunciation : pf kch tth, had already begun in the classical period, a view maintained first by R. von Raumer and finding after him its principal champion in W. Roscher ${ }^{1}$. This question too ought however to be decided by the classification of letters discussed above: for $p f$ etc. are certainly not mutes, and one may go further and say that they are clearly double-consonants, just as much as $\xi \psi \zeta$. In the next place if this view had been correct, it must have been possible to have cited in its support transliterations, especially in Latin, since $p f$ or $t s$ or something similar would have been written, if only in sporadic instances, for Greek $\phi \theta$; but as a matter of fact nothing of the kind is found. And I fail to understand how v. Raumer and Rumpelt can argue, that, because according to Quintilian Cicero in the speech for Fundanius laughed at a Greek witness, who could not pronounce the first letter of Fundanius ${ }^{2}$, Greek $\phi$ was at that time $p f$ or according to Rumpelt a simple spirant ${ }^{3}$. According to Quintilian we must suppose that the man said Hundanius; but even supposing that he had, as they think, made the $f$ into a $\phi$, his representation of the foreign sound by $p+h$ would not have been any further from the mark, than the Slavonic and Lithuanian representation of late Greek $\phi$ or German $f$ as $p^{4}$. The only inference that can be made from the passige is that there was a fundamental

[^37]$e i$; ita adspirare without ci also has authority; $f$ ut $\phi$ Christ. Halm; Spalding rejects $e i$ ) solent, ut pro Fundanio Cicero testem, qui primam ejus litteram dicere non possit, irridet.
${ }^{3}$ Rumpelt p. 56.

+ Kurschat Litt. Gramm. p. 22, 50. (F'ralzose Prancuzas, Christoph Kristups); Miklosich Altslocen. Lautlihe p. 236.


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rufutation of the theory. I am not myself convinced, that this transitional stage obtained general acceptance at any period whatsoever. At all events I can not find it absolutely established for any period, and it may accordingly for our purpose be disregarded. The following facts may serve as a confirmation of the pronunciation as $p+h$ etc. Those Greek races, which did not possess the non-Phœenician symbols $\phi \chi$, in those cases where they were not satisfied with the simple tenuis, adopted the writing ПН КН, exactly as the Romans did, when the representation of the aspirates by the tenues $p c t$ usual at an early period seemed to them not sufficiently accurate and aspiration of consonants had ceased to be regarded as strange. Secondly the contact of tenuis with aspirated vowel produces
 aspirates readily pass into tenues according to a definite rule in inflexional formation and composition: $\tau \in \theta^{\prime} a \mu a \iota, ~ \grave{\epsilon} \tau \tau^{\prime} \theta \eta \nu$,
 if on the other hand violations of this principle are not infrequent ${ }^{2}$ on inscriptions, these errors and the other very numerous alternations of aspirated and unaspirated mutes ${ }^{3}$ only serve to shew, how slight was the distinction between the two. Moreover the doubling of aspirates gives tenuis + aspirate, which is quite regular, supposing that the latter consists of tenuis + breathing ${ }^{4}$; in like manner the Germans write quite correctly $t z$ for double $z$. It is true that a difficulty arises from the fact that before an aspirate a tenuis pronounced with a different position of the vocal organs becomes likewise aspirated; for to many it appears impossible
tion, although this treatment would not be unnatural in the case of the pronunciation $p+l$ etc.
${ }^{1}$ The two last examples from Delos Bull. de corr. l. vi. 25, 27.
${ }^{2}$ Roscher l.c. p. 98. So èvaautoî and $\dot{d} \nu \epsilon \epsilon \theta \eta$ on the Eleusinian inscrip. tion C. I. d. iv. 276. C'p. also Mersterhans p. 78"f.
${ }^{3}$ loscher p. 79 ff. ; Schmitz p. 114 If.-The $\beta$ áp $\beta$ apoc in Aristophanes, the Scythian in the Thesmoph. and the

Triballian in the Birds always put tenuis for aspirate; see also the Athenian vase C. I. Gr. $8076^{3}$. On a Phrygian inscrip. Bull. de corr. hell. i. 255 f. 'Poutivos, T $\rho \delta \pi$ т $\mu \mathrm{os}$, öклоs; Sterret Arch. Inst. of dmerica iir. no.

 $\mathrm{X} \theta \iota \mu$.
${ }^{*}$ There are naturally here and there violations of this rule, Roscher p. 89.
to pronounce eklithus ( $\epsilon \chi$ そos), phtheiro with doubled breathing ${ }^{1}$. $\Sigma$ also has a similar aspirating power, at all events at an early period; hence arises the writing $\Phi \Sigma$, $\mathrm{X} \mathrm{\Sigma}$ for $\psi$ and $\xi$; Plato says, that $\phi \psi \sigma \zeta$ are letters with a strong breathing ${ }^{2}$. Is it possible then to pronounce $p h s$ in succession? We must however be on our guard against speaking too readily of impossibility; for to others, as for example to Lepsius, khth, phs appears perfectl'y possible, and only khkh impossible, since here the organ is the same; where the organ is different on the other hand, the breath, according to them, comes out simultaneously behind the first letter, before the mouth assumes the new position. Accordingly we have no need of the way out of the difficulty, which was adopted by G. Curtius ${ }^{3}$ following the lead of others. This was that the breathing heard after the $t$ or with the $s$ in combinations such as $p t h p s$ was liable to be transformed in the sensorium of the hearer and consequently also in script to the $p$ which was equally susceptible of aspiration, and these combinations being of frequent occurrence habit did the rest to establish an orthography $\Phi \Theta$ etc. ${ }^{4}$ This form of writing is as a matter of fact much too well established for such an explanation to hold water; the four or five exceptions on archaic and later monuments: A $\Theta$ ITON, KATAM@IMENH乏 etc. can hardly count ${ }^{4}$. On the other hand the entirely different treatment of such combinations in modern Greek must be made prominent. The modern Greek spirants shewing an exactly opposite tendency combine with
 neither a combination of hard (surd) spirant with spirant nor of tenuis with tenuis is in accordance with the genius of the language. In like manner $\sigma$ admits of a surd spirant neither

[^38]who uses it (for want of better proof) to establish a spirantic element in $\phi$ in Plato's time.
${ }^{3}$ Curtius Grdz. ${ }^{5}$ p. 414 ff., after W. von der Mühl Aspiration der Tenues (Lpz. 1875) p. 21 f . See on the other side J. Schmidt K. $Z$. xximi. 179 ff.
${ }^{4}$ Röbl no. 314 (Phokis), 382 (Chios).
immediately preceding nor following it: -єvбa i.c. $-\epsilon \phi \sigma a$ becomes
 otávo ${ }^{1}{ }^{1}$. In the same way a surd spirant does not allow a preceding nasal: either this is assimilated and in some cases expelled as ä $\nu \theta$ os $u \theta \theta o s$ a $\theta o s, \nu u ́ \mu \phi \eta n i f f i n i f^{2}$, or a tenuis took the place of the aspirate and then a media the place of the tennis, as in the word KópıvOos which I have myself heard pronounced Kurindos (written Kópıvios). Finally we must remark the effect produced in many cases by a preceding $\rho$ :
 pronounced erkome or er $\chi$ omes ${ }^{3}$. The same applies to the voiced spirant in combination with a nasal, neither is this spirant allowed without exception to stand combined with $\rho$. Where the phonetic laws are so different the sounds themselves of ancient and modern Greek must be fundamentally distinct. In the next place there remains to be produced in support of the long continuance of the real aspirates not only Quintilian's testimony, who regarded $\phi$ as a dulcissime spirans littera, Roman $f f$ and also the $v$ in servus on the contrary as odious and offensive sounds ${ }^{4}$, but also that of the Coptic mode of writing which arose at the end of the second or the beginning of the third century. The Egyptian Christians, when they devised a new alphabet, mainly borrowed from the Greek, for their national language, employed the symbols $\Theta \Phi \mathrm{X}$ for the real aspirates which are found in Egyptian; on the other hand for the sounds $f$ and $c h$, which they likewise possessed, they adopted peculiar symbols which were annexed to the Greek alphabet. In the numerous words borrowed from the
${ }^{1}$ Foy p. 134. $\Sigma \phi$ holds its ground according to Psichari (Mém. de la Soc. linguist. vi. 305) in the ordinary language, but in Trapezus has become $\sigma \pi$.
${ }^{2}$ See p. 85, n. 1.
${ }^{3}$ Psichari Rev. crit. 1887, 265.

+ Quint. xir. 10, 27: jucundissimas ex Graecis litteris non habemus (vand $\phi)$-, quibus nullac apud eos dulcius spirant. He goes on to speak of the grecizing spellings Zephyrus, E'phyra,
and adds: quae si nostris litteris scribantur, surdum quiddam et barbarum efficient, et velut in locum earum succedent tristes et horridae, quibus Graecia caret ( $j$ and $u$ ). Nam et illa, quae est sexta nostrarum, paene non humana voce vel omnino non voce potins inter discrimina dentium ctllanda est.Acolicae quoque litterae, qua scrum cervumque dicimus, etsi forma ( $F$ ) a nobis repuliata est, vis timen nos ipsa persequitur.


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as long as $p / \iota$ and $f$ were distinguished $p h$ and $p, t h$ and $t$, $c h$ and $c$ had been liable to be interchanged: the contrast between the earlier and later pronunciation is therefore evident. This later pronunciation however will not have arisen all at once, it must have needed time to have made its way from the lower to the upper stratum of the people and to have become general. But its beginning or, if you prefer it, its prelude, is perhaps already to be found in the ancient Greek dialects; on this point we go on to speak in connection with the transformation of the mediae.

## Section 29.

## Pronunciation of the Mediae; dialectal pronunciation of the Mediae and Aspirates.

We have seen above, that the name media denotes a half aspirated sound, and not by any means a weak or voiced sound, with which names $b d g$ are now denoted in contradistinction to $p t k$. The Greeks then heard a certain breathing in their $\beta \gamma \delta$; and who shall maintain, that their ears deceived them? Moreover there is this confirmatory fact, that the mediae as well as the aspirates became spirants. It certainly may be maintained that the name mediae suits the present pronunciation also, in so far as the breathing in $\beta v$ is really weaker than in $\phi f^{1}$. On the other hand, since Latin $b g d$ and Greek $\beta \gamma \delta$ correspond to one another with perfect regularity, and the value of the Latin mediae is certainly identical with that of the present Romance and German, the pronunciation of Greek $\beta \gamma \delta$ must have been approximately the same as that of our mediae. In the case of $\delta$ this is made especially clear by the fact, that it is so frequently confused with $t$ by Egyptian scribes; consequently there can have been no such wide difference as that between

Sacerdos (3rd. cent.) K. vi. 451.Schmitz p. 134 furnishes examples for the confusion of $t h$ and $s$ from the
notae Tironianae, also Seluuderico for Theoderico on an inscrip.
${ }^{1}$ Cp. also B. A. 810, n. 2.
modern Greek $\tau$ and $\delta^{1}$. Strangely enough it is only the pronunciation of the $\beta$ which has really been made a matter of controversy. However that this was during the Attic period not $v$ appears sufficiently proven, in case there is still any doubt, by Plato ${ }^{2}$, who calls it a mute, and by the $\beta \hat{\eta} \beta \hat{\eta}$ of the comic dramatists, and it is by no means the case, as has been stated, that in the Roman period it was employed without scruple for $v$. On the contrary the inscriptions of the time of the republic shew almost without exception Ovà $\boldsymbol{\epsilon}^{\prime} \rho \iota o s$, Фó ${ }^{\prime} o v i o s$, and this mode of writing, tedious though it was, even in the period of the empire was never quite ousted by the far more convenient $\beta^{3}$. There existed then a pretty considerable difference between $\beta$ and $v$, greater than that between semivocalic $v$ (English $w$ ) and consonantal $v$ (English $v$ ), for this would not have prevented the universal adoption of the writing with $\beta$. In the time of the Empire, especially from the second century onwards, this difference must have become smaller; otherwise the earlier usage would have been preserved. The Latin $b$ too in many places had a similar development, being pronounced in the same way that survives at the present day among the Spaniards and many of the French of the south, whose vivere is according to the well known witticism bibere ${ }^{4}$. This indistinguishable confusion of the two sounds gave rise next to such spellings as $\Sigma$ govaotós, which is often met with on Greek inscriptions in Italy ${ }^{3}$. But in the fact, that even at the present day $\beta$ is an explosive sound when following

[^39]ly. The same writing was used in verse also; C. I. Gr. 67 sq. इī入ŏviou $\epsilon \dot{u} \xi^{\alpha} \mu \epsilon \epsilon \nu=s$ with consonantal pronunciation. The name of L. Verus is com. monly written Oưpoos, much more rarely B $\hat{\eta} \rho o s$, Dittenberger p. 304. In many exx. also $v$ internal is omitted, $\Phi a \omega \dot{\nu} \iota o s$, Bó九 $\lambda \lambda a \iota$, in short it is quite evident that the Greeks possessed no quite appropriate expression for $v$.
${ }^{4}$ Corssen 12, 131; Diez Gr. 1, 280. 376 ; Seelmann p. 239 f.
${ }^{5}$ Dittenberger p. 304.
a nasal, Psichari ${ }^{1}$ rightly finds a proof, that it was originally this in all cases; for lomivos could not have produced kombos, but an original $v$ would have done away with the nasal. As regards $\gamma$, this letter seems at all events when between vowels to have become a spirant at a very early period in the popular pronunciation. For a frequent misuse of it on papyrus is to bridge over a hiatus: íүı子aìıs = íyıaìєıs, $\kappa \lambda a i \gamma \omega=\kappa \lambda a i \omega$,
 is frequently wrongly omitted: viaív$\eta s, \dot{o} \lambda i o s^{s}$, which latter form is also attested as Tarentine and is cited by the Attic comic poets as a barbarism of the demagogue Hyperbolus ${ }^{4}$. Compare further $\Phi \iota a ́ \lambda \epsilon \iota a=\Phi \iota \gamma a ́ \lambda \epsilon \iota a$, à $\eta^{\prime} o \chi a$ for à ${ }^{\prime} \eta{ }^{\eta} \gamma \circ \chi a$, Bœotian $i \omega^{\prime} \nu$ for $\epsilon \gamma \omega^{\prime}, a^{\prime} \gamma \epsilon \theta \lambda a$ in Pamphylian ${ }^{5}$. All this points to a softening of the guttural explosive to a $y$, or in the case of a back-vowel to the $g$, which the Germans usually pronounce in Tage; but the sound was so undefined and weak, that it was thrust in and left out at will ${ }^{6}$. The phenomenon was however in any case strange to the standard Attic, as is shewn by the sneer at Hyperbolus and probably neither Hyperbolus nor any one else at Athens who pronounced ò $\lambda i ́ o s$, on the same principle pronounced $\lambda \epsilon \epsilon \gamma \omega$ as $\lambda \epsilon \epsilon \omega$, any more than a Bœotian said $\lambda i \omega$ because he had icò for $\epsilon ่ \gamma \omega \nu$. Such cases as these have their source in isolated words of frequent occurrencecompare Italian io from ego, but not lio from lego-and may subsequently develope into a principle of universal application. In some of the dialects however other mediae also and not less other aspirates to all appearance became at an early period
${ }^{1}$ Psich. Rev. crit. 1887, 267.
${ }^{2}$ Pap. L. 63 col. 1 írizalves and
 Tárทs 23. 55 Bis; $\Sigma$ इapar. 40. 41.
 4; 26 twice.
${ }^{4}$ Herodian 1, 141, 19; Plat. com. frg. 168 K. (in Herod. iI. 926) ; v. Herwerden 60 (C. I. A. ir. 594, 8). Also on the inscr. of Chersonesos on the Crimean Peninsula (Bull. de corr. lell. v. 70 Dittenb. 252), $\delta \lambda(\omega c$ is found at 1.10 ; see further ' $\mathrm{E} \phi . \dot{\alpha} \rho \chi$. 188.1 p .

39 l. 22 (Peiraieus, decree of Macedonian Period) ; Bull. vir. 166 (Imbros) Meisterbans, p. 59².
${ }^{5}$ G. Meyer Gr. ${ }^{2}$ p. 218; ä $\gamma \epsilon \theta \lambda a$ Röhl no. 505 l. 24.
${ }^{6}$ Cp. Wessely Iriener Stur. 1882 p. 197, who draws the general conclusion, that $\gamma$ was pronounced like ? before an $E$ - or $I$-sound. The indications or suggestions of such $\Omega$ pronunciation are however found with much greater frequency in the earlier than the later periol.

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to be found for $\theta$ after $\sigma$ on an old Laconian inscription ${ }^{1}$. In the next place Apollonius testifies, that in Doric poets, among whom judging by the character of the quotations we must understand Alcman to be included, the tenuis in elision and crasis is 'times without number' not altered before the spiritus
 explained in the same way in the Laconian dialect as the same phenomenon in Ionic; for in that dialect the spiritus had disappeared, in Laconian it was still living when medial. If on the other hand the aspirates had become spirants, it would be quite natural, that in this case the tenuis should not become a spirant, but should remain. Did the Laconian dialect then really have the modern Greek sound-system? We cannot reconcile this view with the phenomena we have described in Alcman, corresponding, as we must assume, with the cultivated Laconian of about the fourth or third century B.C.; for we do not find there anything like $\epsilon \pi \pi a \nu \tau \epsilon \hat{\imath}$, $\phi \tau \epsilon ́ \gamma \gamma \epsilon \tau a l$, so that the sound must be considered as the aspirate which has stood its ground in these cases. But if $\theta$ was still often an aspirate, why should not the same be true of $\phi \chi$ ? Moreover ov $\chi o \rho \eta s$ (ov$\chi \quad \dot{o} \rho \hat{\eta} s)^{3}$ on the AlcmanPapyrus goes against the argument taken from Apollonius. I would therefore prefer the following explanation. In Laconian in cases of elision and crasis the breathing might disappear together with the elided vowel, instead of as in other dialects changing its place; in ovं $\chi \dot{\delta} \rho \bar{\eta} s$, where there is no elision, aspiration naturally took place. According to this there remains for this dialect a spirantic $\beta$ and a partly spirantic $\theta$. Similar phenomena are to be found also in other Doric dialects. Cretan, especially as we know it from the Gortynian inscription,
${ }^{1}$ Röhl no. 72, infinitive in - $\epsilon \sigma$ ral.
${ }^{2}$ Apoll. Synt. p. 335 (Bergk Lyr.



 least the first three fragments to Alcman.


Lenis, cp. Rh. Mus. xl. 2) obviously stands apart. In the other fragments there are not very many examples for the one or the other; in frg. 60 Bergk


 nian inscr.) scems to be rightly preserved.
entirely ignores the usual and well-founded rules, according to which the aspirate is neither doubled, nor does it begin two syllables in succession : $\sigma \theta$ 'is assimilated to $\theta \theta$, for which we have sometimes $\theta$, but never $\tau \theta$, and the forms from $\tau \iota \theta \epsilon \in \nu a \iota$ always shew repeated aspirates: $\theta \iota \theta \hat{\eta} \iota, \theta \iota \theta \epsilon \mu \epsilon ́ \nu \omega \iota, \kappa a \tau a \theta i \theta \epsilon \theta \theta a \iota$, $\mu \dot{\eta} \pi \iota \theta_{\iota} \theta \epsilon \in \tau \omega^{1}$. If then $\theta$ was a spirant, all is perfectly clear ; for modern Greek also knows forms like $\chi^{\prime} \phi \tau \omega$ ( $\kappa \alpha ́ \pi \tau \omega$ ), $\chi a \chi a \nu i \zeta \omega$
 etc. ${ }^{2}$ The Gortynian inscription has T for $\Theta$ before and after $\nu: \not ̆{ }^{\prime} \nu \tau \rho \omega \pi \tau о \varsigma, \tau \epsilon \tau \nu a \kappa o ́ s{ }^{3}$, which again agrees admirably. Here then we seem to be really on safe ground; it is however absolutely wrong, to go further and explain $\phi \chi$ as spirants; for the Cretans wrote for these right on to a rather late period $\pi \kappa$, which they certainly would not have done, if they had been $f$ and ch. It is evidently rather the case that the one dental aspirate had become a spirant, and that this was the only one which had a special symbol in the national alphabet. With regard to the mediae we have not sufficient material for drawing any conclusion; for even the replacing of F by $\beta$ only occurs in isolated instances ${ }^{4}$. On the other hand a spirantic $\delta$ appears certainly to have existed in Elean: for many of the old Olympian inscriptions use $\zeta$ for $\delta$, which can only signify the spirant: $\zeta^{\prime}$, Ч'каıа, 'О $\lambda \nu \nu \pi \iota a ́ \zeta \omega \nu . ~ \beta$ also occurs for F in the same dialect: $\mathrm{B} a \delta v^{\prime}$ place-name $=\eta^{\dot{\eta}} \delta v^{5}$,及оькía on the great Damocrates inscription belonging to the Hellenistic period ${ }^{6}$. The latter has also moıña $\sigma \sigma a \iota$ for $\pi o \iota \eta$ $\sigma a \sigma \theta a \iota$; on the older inscriptions on the other hand $\sigma \tau$ appears regularly for $\sigma \theta$ : $\lambda v \sigma a ́ \sigma \tau \omega$; $\pi \alpha ́ \sigma \kappa o \iota ~ a l s o ~ f o r ~ \pi a ́ \sigma \chi o \iota ~ a p p e a r s ~$
${ }^{1}$ Katatie. Gortyn. inscr. c. 6, 4; $\theta_{\iota} \theta \hat{\imath} \iota \quad \theta_{\imath} \theta \epsilon \mu$. Gort. Comparetti Mus. Ital. iI. 635 ; $\mu \dot{\eta} \pi \iota$. Cnossus ib. 678.
${ }^{2}$ Psichari Mém. de la soc. de linguistique vi. 303 f.; who sums up as follows:-en grec moderne, les spirants sourdes s'attirent au commencement de deux syllabes consécutives; quand les deux spirantes sont contiguës, la seconde se change en l'explosive correspondante. Nous avons
le traitement inverse dans les aspirees anciennes.
$3^{3} \mathrm{~A} \nu \tau \rho$. $\dot{\alpha} \nu \tau \rho \dot{\omega} \pi \tau \nu \alpha$ Gortyn. inscr. xı. $24 ;$ x. 43 ; $\tau \nu \alpha \tau \omega ิ \nu$ ib. v. 39 ; $\tau \epsilon \tau \nu a \kappa 6 s$ $\tau \epsilon \tau \nu a ́ к \eta \iota$ Gort. Rh. Mus. xur. 119 f. But $\ddot{\partial} \nu \theta \rho \omega \pi$ os Cnossus Mus. Ital. ir. 677/8.
${ }^{4}$ See p. 76 n. 3. G. Meyer assumes spirantic $\delta$ 2nd ed. p. 262 (on Cret. $\phi$ as spirant cp. ib. 261).
${ }^{5}$ Ahrens D. $A .226$.
${ }^{6}$ Dial.-Inschr. $11722^{33}$.
to be a corresponding instance ${ }^{1}$. Whether this $\sigma \tau \sigma \kappa$ is an indication of spirantic pronunciation, I do not know ${ }^{2} ; \sigma \tau$ is found just as regularly in Lokrian, which is allied to Elean, and sporadically also on Phokian and Bœotian inscriptions. In the case of Lokrian we again find the same apparent indication which we found in Alcman; that is to say although the symbol for the aspirate is in use, the tenuis is never aspirated in cases of elision and crasis, as for instance HOPKOミ $\pi \epsilon \nu \tau о р к і а$,
 $\kappa \alpha \theta \iota \kappa o ́ \mu \epsilon \nu о \nu^{3}$. Finally here also $\theta_{\epsilon}^{\prime} \theta \mu \iota \nu \nu$ occurs with doubled aspirate; in Olympia we have for the same word OE®TMON with one of those perplexing errors which characterise these bronzes ${ }^{4}$. On the other hand $\nu \theta$ etc. are found in both places quite as usual, and on an inscription which is apparently Elean $\tau v \tau \theta^{\prime} \nu^{5}$. It might be safer, with regard to Lokrian to maintain nothing and with regard to Elean only a spirantic $\delta$ and $\beta$.

## Section 30.

## Pronunciation of $\Xi \Psi$.

Of the three double-consonants $\Xi \Psi \mathrm{Z}$ the two first demand but very little discussion. The older Greek races, as the Athenians and Bœotians, employed as has been mentioned above $\chi \sigma \phi \sigma$ for the symbols which they did not yet possess; the grammarians on the other hand unanimously consider this first member to have been a tenuis $\kappa \pi^{6}$, and according to Theophrastus this was done even by Archinus, the reformer of Attic orthography in the archonship of Euclides ${ }^{7}$. Ebeing a r $\rho \dot{\mu} \mu \mu a$
${ }^{1}$ ET Röhl no. 109, 111, 117, 119, 121 (D.-I. 1147, 1157, 1159, 1161, 1168), та́бкоя R. 112 (D.-I. 1152).
${ }^{2}$ G. Meyer ${ }^{2}$ p. 262 is much too precipitate: "which proves a pronunciation as in modern Greek."
${ }^{3}$ R. 321, 322 (D.-I. 1478, 1479). Also $321^{14}$, al $\kappa^{\prime} o^{\circ}$; but the aspirate is never found written in the case of the article.
${ }^{4}$ R. $321^{40}$; $113^{b}$ (D.-I. 1154). Also on the Xuthias inscrip. (R. (88)
$\theta \epsilon \theta \mu \delta \nu$ twice ; but always $\sigma \theta$. $\quad Ө \epsilon \theta \mu д \nu$ Epidaurus ' $\mathrm{E} \phi \eta \mu$. 1885, 65/66. G. Meyer ${ }^{2}$ p. 291.
${ }^{5}$ R. 552 (D.-I. 1161).
${ }^{6}$ Dion. Thrax B. A. p. 632: ( $\sigma \dot{v} \gamma$ $\kappa \epsilon \iota \tau a \iota) \tau \delta \xi \grave{\epsilon} \kappa \tau \sigma \hat{\kappa} \kappa \kappa а i \quad \sigma, \tau \partial \delta \dot{\epsilon} \psi \dot{\epsilon} \kappa \tau \tau \hat{u}$ $\pi$ каl $\sigma$. Dion. Hal. Comp. p. 82 к т $\delta$
 $\gamma \mu \grave{\partial} \nu \dot{a} \pi \sigma \delta i \delta \omega \sigma \iota, \psi \iota \lambda \hat{\omega} \nu{ }_{o}^{\circ} \nu \tau \omega \nu \dot{a} \mu \phi \circ \tau \ell \rho \omega \nu$ (cr. p. 78, 79).

7 Syrian Schol. Ar. Met. p. 910: таúr $\eta \delta \dot{\jmath} \tau \hat{\eta} \dot{a} \pi{ }^{2} \delta \delta \sigma \epsilon \epsilon$ (that thesc are

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this order). Archinus also says that it contains a $\delta$, and on this point certainly there ought to be no dispute. The German pronunciation giving it the sound ( $t s$ ) of their own $z$ is of course a mere misuse and is not defended, but many modern philologists imagine its sound to have been somewhat like $z z$ (double sonant $s$ ) and endeavour not without a little violence to bring the authorities into harmony with their theory ${ }^{1}$. Such speculations as these I cannot follow but rather believe, that the sound, which men like Aristotle and Dionysius of Halicarnassus heard, must have really existed. But with reference to the sequence of the two elements G. Curtius also has entered the lists against the ancients supporting the pronunciation $d s$ (more correctly $d z$, with the French value of $z$ ). This pronunciation too can be designated as traditional; for in Italian the $z$ of Greek words has still this sound (zelo, zeta), and it is easy to shew that the tradition goes back to an early period ${ }^{3}$. On the other hand, according to that excellent authority Psichari, the pronunciation of $\zeta$ as $d z$ which is at present current among the Greek islands is not to be regarded as in any way traditional, any more than the pronunciation of $\sigma \sigma \sigma$ as $t s$ ( $\tau \epsilon \in \tau \sigma a \rho a, \dot{a} \tau \sigma \dot{j} \mu \iota$ $=\dot{a} \sigma$. "silver"). Psichari states that in Chios, the various stages of this modern development may be observed side by side : nomin ${ }^{n} z o$, nominzo, nomindzo ${ }^{4}$. Moreover, as dy is etymo-
$\lambda a \mu \beta a ́ \nu o \nu \tau \alpha, \vec{\eta} \delta \iota a ̀ \tau o ̀ ~ \chi \omega ́ \rho \rho \alpha \nu \dot{\epsilon} \pi \epsilon \chi \epsilon \iota \nu \delta \nu \epsilon \hat{\nu} \nu$ $\gamma \rho a \mu \mu a ́ \tau \omega \nu$ द̀ $\nu \tau a i ̂ s ~ \sigma u \lambda \lambda a \beta a i ̂ s ~ \pi a \rho a \lambda a \mu-$
 $\tau \hat{\omega} \nu a ̆ a \lambda \omega \nu \gamma \rho a \mu \mu a ́ \tau \omega \nu$ â $\delta \grave{\eta} \delta \iota \pi \lambda \hat{a} \kappa a \lambda \epsilon \hat{\imath}-$ $\tau a \iota \tau o ̀ ~ \zeta \mu a ̂ \lambda \lambda o \nu \dot{\eta} \delta \dot{u} \nu \epsilon \iota \tau \dot{\eta} \nu \dot{a} \kappa о \grave{\eta} \nu \tau \hat{\omega} \nu$
 $\delta \iota \alpha ̀ ~ \tau o \hat{v} \pi \tau \grave{o} \nu \sigma \nu \rho \iota \gamma \mu \grave{o} \nu$ à $\pi o \delta i \delta \omega \sigma \iota, \psi \iota \lambda \hat{\omega} \nu$ ö̀ $\nu \tau \omega \nu \dot{\alpha} \mu \phi o \tau \epsilon \rho \omega \nu, \tau o \hat{\tau} \tau \circ \delta^{\prime} \dot{\eta} \sigma u \chi \hat{\eta} \tau \hat{\varphi}$ $\pi \nu \epsilon \dot{v} \mu a \tau \iota \delta a \sigma v i v \epsilon \tau a l$ (on account of the media $\delta$ contained in it), каl $\check{\epsilon} \sigma \tau \iota \tau \hat{\omega} \nu$ $\dot{\dot{o}} \mu 0 \gamma \epsilon \nu \hat{\omega} \nu \gamma^{\epsilon \nu \nu a \iota \delta \tau a \tau o \nu}$ (the noblest, most euphonious sound). This passage is wrongly interpreted by Ascoli Krit. Stud. p. 365 f. of the German trans., who finds in it an indication of the sound $z^{\prime} z^{\prime}$ ).--Sext. Empir. p. (662, 13k.; Bekk. Anec. p. 1175 ( $\zeta$ cannot like $\zeta \psi$ stand as a final, $\delta \iota b \tau \iota$ є́к той $\sigma$ каі $\delta$ докєі
 $\epsilon l s a^{\prime} \phi \omega \nu 0 \nu \kappa \alpha \tau a \lambda \eta \dot{\gamma} \epsilon \iota$ ). The evidence from Greek sources is therefore unanimous except the scholia on Aristotle, in which certainly (p. 331 в, 33, 42) the $\sigma$ is denoted as the second sound for all three double letters. For the Scholiast thus understands the $\dot{e} \pi \iota-$ $\phi \epsilon \rho \epsilon \tau a l$ of Arist., which however in this author (s. Bonitz Index) by no means has the later meaning 'follow'.
${ }^{1}$ Ascoli (sec preceding note).
${ }^{2}$ Curtius Grdr${ }^{5}$. p. 615.
$s$ We have also the testimony of the Latin grammarians, see below.

+ Mondry Beaulouin liull. de corr. hiell. iv. p. 3 ifi (Carpathus).
logically at the root of $\zeta$, $d z$ may easily have been developed from this just as in Italian mezzo i.c. meddzo comes from medius (medyus), orzo from hordeum (ordyum); diurnus giorno (džorno) also is essentially analogous. Accordingly this pronunciation too has its claims, and moreover the origin of the modern Greek pronunciation as simple $z$ requires illustration; the third and not the least warranted pronunciation is that maintained by the grammarians, namely $s d$ or more accurately, since $s$ must be soft before the media, $z d$. Let us endeavour then to do justice to each one, assigning to it its province and period. It is a well known rule that in Attic and Hellenistic Greek the preposition $\sigma v \nu$ loses its $\nu$ in combination with initial $\zeta$ : $\sigma \nu \zeta \eta \tau \epsilon \hat{i} \nu, \sigma \nu \zeta \epsilon v \gamma \nu v \in \nu a \iota, \sigma v \zeta \hat{\eta} \nu$. If now $d$ was the prior element in the compound letter $\zeta$ (syn-dsēn), there was no reason for the rejection of the $\nu$; we find $\sigma \nu \gamma \xi^{\prime} \omega, \sigma v^{\prime} \mu \psi \eta \phi o s$. But if the pronunciation in Attic was $s d, s y(n) s d e n$ is perfectly analogous to $\sigma v(\nu) \sigma \pi \hat{a} \nu, \sigma v(\nu) \sigma \kappa \epsilon v a ́ \zeta \epsilon \iota \nu$. Here then we have our first confirmation of the tradition of the grammarians ${ }^{1}$. In the next place the preposition $\bar{\epsilon} \xi$ must of necessity lose its $s$ before $\delta$; before $\sigma$ it need not. Now we find on the Attic maritime documents in big letters as a title $\mathfrak{\epsilon} \xi$ Z $\epsilon$ ́as, i.e. eks sdeas ${ }^{2}$. Moreover the distortion of $\hat{\omega} \mathrm{Z} \epsilon \hat{v} \delta^{\prime} \sigma \pi \sigma о \tau a$ into $\hat{\omega} \mathrm{B} \delta \epsilon \hat{v} \delta^{\prime} \epsilon \sigma \pi о \tau a$ by an Attic comic poet would be very harsh if the pronunciation were $\Delta \sigma \epsilon \hat{v}$, but quite easy if it were $\Sigma \delta \epsilon \hat{v}$. We often find in Attica, Bœotia, Delphi, that is in central Greece generally, the spelling $\sigma \zeta$ for $\zeta$ : $\mathrm{B} v \sigma \zeta^{\prime} \nu \nu \tau \iota o \iota, \sigma v \nu a \gamma \omega \nu \iota \sigma \zeta_{o}^{\prime} \mu \epsilon \nu o \iota, ~ \epsilon ่ \pi \epsilon \psi \eta^{\prime} \phi \iota \sigma \zeta \epsilon \nu^{3}$. If $\zeta=\sigma \delta$, this is analogous to the spellings mentioned above $\Lambda \epsilon ́ \sigma \sigma \beta o \nu, \gamma \rho a ́ \psi a \sigma \sigma \theta a \iota$ etc.; for $\sigma \zeta$ is then equal to $\sigma \sigma \delta$. We
${ }^{1}$ C. I. $A$. ir. 793 f. 54 . I can not appeal to $\dot{\epsilon} \xi \zeta \omega \hat{\eta} s$ Kaibel Epigr. no. 155, since judging by the very late date of the epigram we must rather suppose the simplified pronunciation as $z$ to have belonged to the $\zeta$. It cannot be denied however, that the assimilation of $\dot{\epsilon} \xi$ sometimes does not take place or takes place wrongly: $\bar{\epsilon} \xi$
 814, 27 ; $\dot{\epsilon} \gamma$ П $\epsilon \epsilon \rho a \iota \omega \hat{\omega}$ often $834^{\mathrm{b}}$ II. (ib. є́ $\boldsymbol{\gamma} \alpha і \delta є к а)$.
${ }^{2}$ Meineke Frg. Com. iv. 688.
${ }^{3}$ Thebes Dial.-Inschr. 705, 20;
 Delphi W. F. 218, 11. Cp. my Miscell. epigraph. in the Satura philologa Herm. Sauppio oblata p. 124 f. (картiб $\zeta \epsilon \sigma \theta a \iota$ consular letter to the Oropians, ' $\mathrm{E} \phi$. áp $\chi .1884$ p. 101 ff. 1. 28; also Monum. Ancyr. $\mu$ eiojova, col. 15, 15 ; other later exx. G. Meyer ${ }^{2} 22$ j.) (Old Attic
 C. I. A. I. 230, 238.)
find similar pleonasms in ${ }^{\epsilon} \xi \xi$ s on an inscription of Chios ${ }^{1}$ and the $x s$ which is so common in Latin for simple $x ; s x$ and $\sigma \xi$ on the other hand still require authentication，as also $\zeta \sigma$ ．The $s$－sound then preceded in $\zeta$ ，while in $\xi$ it followed．－${ }_{\epsilon} \zeta \omega \nu$ for $\stackrel{\epsilon}{\epsilon} \sigma \tau \omega \nu$ on a Delphian inscription is a very instructive error in writing，which would be impossible if the pronunciation of $\zeta$ had been $d s$ ，but is easily intelligible supposing it to have been $\sigma \delta^{2}$ ．In the next place in cases of contact $\sigma+\delta$ frequently


 Өєó $\zeta$ ботоs $\Delta \iota o ́ \zeta о \tau о s^{3}$ ，and in Attic inscriptions as well as in authors $\Theta \epsilon o ́ \zeta o \tau o s ~ \Theta \epsilon o \zeta о \tau i ́ \delta \eta s^{4} . ~ \beta \nu^{\prime} \zeta \eta \nu$ also appears to me to be undoubtedly equal to $\beta \dot{v} \sigma \delta \eta \nu$ ，cp．$\beta \epsilon \epsilon \beta v \sigma \mu a \iota$ and $\pi \lambda \epsilon \epsilon \gamma \delta \eta \nu$ ；
 although now there is a tendency to analyze them rather into $\beta v^{\prime}-\zeta \eta \nu$ ，＇A $\theta \eta_{\nu}^{\prime} \alpha-\zeta \epsilon$ etc．For if this supposed $\zeta \epsilon$ had been added，the word would have been＇A $\theta \dot{\eta} \nu \eta \zeta \epsilon$ just as＇A $\theta \eta \nu \eta \theta \epsilon \nu$ and in Homer $\theta \dot{v} \rho \eta \zeta \epsilon$ like $\theta \dot{v} \rho \eta \phi \iota \theta \dot{v} \rho \eta \theta \epsilon^{5}$ ．According to our view ${ }^{\epsilon} \rho a \zeta \epsilon \chi \alpha \mu \hat{a} \zeta \epsilon$ are formed on false analogy，just as＇O $\lambda \nu \mu$－ $\pi i a \sigma \iota$ from the singular＇O $\lambda_{\nu \mu \pi i ́ a, ~ M e \gamma a \rho o i ̂ ~ f r o m ~ t h e ~ p l u r a l ~}^{\text {a }}$ Mérapa．—Lastly we find the $z d s d$ of foreign names represented by $\zeta$ ：＇$\Omega \rho о \mu a ́ \zeta \eta s$ Auramazda，＂А $\zeta \omega \tau o s ~ A s h d o d, ~ ' A \rho \tau a o v a ́ \zeta \eta s$ Artavasdes，in Plato，Herodotus and later writers ${ }^{6}$ ．Accord－
${ }^{1}$ Röhl no． 381 a， 5 （Bechtel Inschr．d．ion．Dial．174）；Dial．－Inschr． 3130 ，3136．Cp．Na $\xi \sigma l_{o \nu}(=l \omega \nu)$ on an old coin of the Sicilian Naxians， Eckhel D．N．1．226；д⿱亠䒑аүра́тұаı Mykale C．I．Gr． 2909 （Bechtel 144）．
${ }^{2}$ Wescher－Foucart 189， 13 ；also in 253,11 not ET $\Omega$ which the transcrip－ tion gives，but $\mathrm{E} 工 \Omega$ no doubt is to be found on the stone．
${ }^{3} \theta \epsilon \epsilon 6 \sigma \delta$ ．Röhl no． $151=$ Dial．Inschr．567；with $\zeta$ Tanagra D．－I． 982 two sepulchral pillars ； 914 col． 3 （ $=$ l ． 1：57）； 1043 （－$\sigma[-)$ ；Thebes 708，714； Thesp．807＂；$\Delta 105$ ．Kopai ：556；Thebes 700 （1．300）；＇Ihessaly 3157，Mıtllueil．
d．arch．Inst．1889， 59 sq ．
${ }^{4}$ Dem．21，59；Plat．Apol． 33 E； C．I．A．ir． 944 a， 39 ；C．I．Gr．iv． 821， 1 ff．
${ }^{5}$ रa $\alpha \hat{a} \theta \epsilon \nu$（Att．Ion．，not in Homer） might be cited in opposition．But the other form $\chi a \mu a i \theta \epsilon \nu$（from $\chi a \mu a l$ ） appears to me correct（accordingly at most $\chi a \mu \hat{q} \theta \epsilon \nu) . \quad$ Cp．Osthoff，$z . G e s c h$. d．Perf． 596 ff ．Forms like＇$\lambda \chi a \rho \nu \hat{\eta} \mathrm{j}_{\mathrm{s}}$ （Lentz Herodinn 499）have been found neither in authors nor inscriptions as yet．
${ }^{6}{ }^{\prime} \Omega \rho \rho \mu$ ．Plat．Alc．i． 122 ィ，Plut． Mor． 369 D ；משד coins of the Satraps， Muzduh head of a sect 500 a．d．，see


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Slovenian dya regularly becomes $\check{z} d a^{1}$. It is true that there tya also. becomes sta, whilst in Greck $\tau y a$ becomes $-\tau \tau a$ or $-\sigma \sigma a$ according to the dialect. But those who adopt Curtius' assumption are equally unable to shew any analogy between the treatment of $t y$ in Greek and that of $d y$, and they have to explain what is absolutely surprising, namely that the samelanguage admitted $d z$ but not $t s^{2}$. According to my view, it has (at least universally) admitted even $d z$, since not only has this in many dialects become $\delta \delta \delta$, as $t s$ has become $\tau \tau$ in Thessalian, Bœotian, Attic ${ }^{3}$ and also Cretan, but also other dialects have transposed the two clements. Attic might very well reject $\delta \delta$, although it preferred $\tau \tau$ to $\sigma \sigma$, and the Doric of Delphi, which had $\sigma \sigma$ for $t y t s$, might nevertheless avoid the corresponding assimilation in the case of $d z$, especially as the sound of the soft $s$ only existed in the language in combination with a consonant, while here it would have been independent. On this side then there is really no obstacle; on the other hand it is certainly perplexing to meet with $\sigma \delta$, i.e. the Attic sound of $\zeta$, as a dialectic peculiarity of the Lesbian and some other poets as Alcman and Theocritus ${ }^{4}$. Be it remarked however, this is only in books, not on in-
${ }^{1}$ Miklosich Altsloven. Lautl. p. 275.
${ }^{2}$ I would however suggest, that the sound $t s$ is hidden beneath the writing T, which occurs in Halicarnassus I. 500 (5th cent.) : AAIKAPNAT[E $\Omega$ ]N and A IIKA [PNH]EEERN AMIKAPNHZEON, OATATIOL, IIANYATIOS; also on coins of the Thracian Mesembria: METAMBPIAN $\Omega$ N (Kirchhoff ${ }^{\ddagger}$ p. 12), and according to Röhl's suggestion (p. 139) in OANATHS Teos 497 в. 23. For in these Carian proper names on other later inscriptions $-a \sigma \sigma \iota s-a \xi \iota s$ is written for -ATIS, Bull. de corr. hell. iv. 316, v. 580, vi. 191 (Bechtel 104, 239, 240).
${ }^{3}$ I still have no doubt in spito of Ascoli (Krit. S'tud. 324 ff.) and in spite of G. Curtius' recantation (E'tym.' (G6i)
that $\tau \tau$ and $\sigma \sigma$ both go back to $t s$. Ascoli's proofs of the origin of $\tau \tau$ in $\sigma \sigma$ are all of a very problematical character. It seems to me also sufficiently certain, that $\tau \tau$ was a peculiarity of Euboea and Oropus, although Bechtel Inschr. d. ion. Dial. p. 13, 37, still doubts it. Kious Styra no $19,{ }^{383}$ в. and Kı $\sigma a$ - do. ${ }^{382}$ are too obscure in their derivation, to be of any use as instances. -On Crete see p. 122, n. 4 below.
$\downarrow$ Ahrens D. A. $45 \mathrm{ff} . ;$ Meister Gir. Dial. 1. 129. This usage is not constant cither in the Acolic poets or in Theocritus; the rule which Ahrens tries to institute is doubtful. Cp. Morsbach dial. Thioor. Curtius Stud. x .31 ff .
scriptions; the Lesbian inscriptions as early as the fourth century have always $\zeta^{1}$. But an antiquated spelling might easily be transmitted in the manuscripts of poets ${ }^{2}$, and be adopted by artificial poets like Theocritus. It appears to me, that considering the few fragments which we possess of the Lesbian poets and the almost entire want of early Æolian inscriptions, we cannot yet expect a satisfactory solution of this riddle. I would suggest however, that the Æolians pronounced $s d$ as the Athenians, but wrote this with two symbols, employing $\zeta$ for that sound, which in their dialect arose from $\delta \iota$ - before a vowel: $\zeta \grave{a}=\delta \iota \grave{a}, \kappa \alpha ́ \rho \zeta a ;$ this sound must have been $z(d z)^{3}$, and for such a $\zeta$ no one cites any instance of the writing $\sigma \delta$. A difficulty of a different sort is the Delphian катаסоvд८ $\zeta \mu \omega \iota^{4}$, evidently pronounced $-z m o i$, in a dialect which we have claimed for the pronunciation $z d$. This orthography $\mathrm{Z} \mu \dot{v} \rho \nu a \zeta \beta \epsilon \nu \nu \dot{\prime} \nu a \iota$ is, as was mentioned under $\sigma$, very widely circulated in the Hellenistic and Roman period ${ }^{5}$; in itself however it by no means proves the simplification of the $\zeta$. For $\Sigma \mu u ́ \rho \nu a$ did not represent the actual pronunciation zmyrna (with soft $s$ ) with greater propriety than $Z \mu \dot{v} \rho \nu a$, in which latter spelling the $d$ became mute spontaneously. Thus in the Attic period also
 $\beta_{a} \zeta_{o s}$, with $\zeta=$ Persian $z^{6}$. It is however noteworthy, that $\zeta \mu$ appears so often subsequently, and moreover the alternations between $\sigma$ and $\zeta$ are not entirely limited to this case. We find on an inscription of Cnidus $\zeta_{\eta}^{\prime} \zeta a \zeta a\left(\zeta_{\eta}^{\prime} \sigma a \sigma a\right)^{7}$, on
${ }^{1} \pi \rho \circ \sigma o \nu \nu \mu a ́ \sigma \delta \epsilon \sigma \theta a \iota$ on an inscription of Cyme of the Roman period (Cauer no. $127=$ Dial.-Inschr. 311) is of course only an affected archaism.

2 The grammarians themselves regard it merely as a matter of spelling, putting it in the same category with Æolic кбє́vos Пє̂̀отs iє́paкs (Ahrens p. 48 f.; Meister 127, 1; R. Schneider Bodleiana p. 43).
${ }^{3}$ With $\delta \iota a ́-\zeta a ́ ~ c p . ~ \tau ı \underline{a}(\tau i \nu a) \sigma a ́$ in Doric (Ahrens D. D. 277).
${ }^{4}$ Wescher-Foucart 433, 13.
${ }^{5} \sigma \zeta$ also occurs occasionally before $\mu: \epsilon \bar{\epsilon} \delta \sigma \sigma \mu o u s$ Ath. (Macedonian period) 'Е $\phi .1883,125$ f. $\gamma, 12$; 'E $\rho \alpha \sigma \zeta \mu i a$ C. I. A. iII., 1553 ; $\chi \rho \eta \sigma \zeta \mu$ ó $\nu$ Cos Bull. de. corr. h. v. 228 (to be divided as $\chi \rho \eta \sigma-\zeta \mu o ́ \nu)$.
${ }^{6}$ Coins of the Satraps פרנבזו, תריבזו, Nöldeke Ber. Wien. Akad. 1888, 415, 419.
${ }^{7}$ Kaibel Epigr. $204^{\mathrm{b}}$; a few other exx. Keil Bullet. de l'acad. de St Pet. 1857, p. 179 (Mél. Grêco-rom. II. 38 f.).
ordinary papyri $\ddot{v} \beta \rho \iota \zeta a \nu, ~ \epsilon ̇ \sigma u ́ \gamma \eta ~(\epsilon ' \xi u ́ \gamma \eta \nu)^{1}$; as a general rule it is true the writers of the papyri know how to distinguish the two letters. In the next place, against the value $z d$ we have
 ová $\sigma \delta \eta$, ' ${ }^{\prime} \Omega \rho o \mu a \dot{\sigma} \sigma \delta o \nu^{2}$; for in the case of $k s \mathrm{ps} \xi \psi$ are always used in these transliterations and adaptations, and I would also confidently suggest, that the presumably Carthaginian name AモIOYB $\Omega$ (gen.) on a Theban inscription is really $A I P O \Upsilon B \Omega^{3}$. So far then we should conclude that the modern Greek pronunciation prevailed in the Hellenistic popular language, while for the preceding era we have as yet only found the sound $z d$. And certainly $z d$ could be simplified to $z$ by a gradually weakened pronunciation of the $d$; but this is truc to a still greater degree of $d z$, the claims of which must now be put to the test. Now $\zeta$ occurs to all appearance with such a value, $t$ s or $d z$, on old Cretan inscriptions: ö ǒos i.e. "ö $\sigma$ os
 $(\zeta \omega \hat{\omega}=\zeta \omega \omega \hat{\nu})^{4}$. But this disappeared in Crete at an early date, and $\tau \tau$ or $\delta \delta$ according to the circumstances, and initially $\delta$ was written for it. Thus the Gortynian inscription; later on we
${ }^{1}$ Pap. L. 40,41 (ü $\beta \rho$.) ; pap. Weil
 $\sigma \iota$. All these pieces are more than averagely faulty ; e.g. the Papyrus of Hyperides on the contrary shews nothing of the kind. (The attic $\psi \eta \phi / \sigma \epsilon \sigma \theta a l$ for - $\zeta \in \sigma \theta a \iota$ Boeckh See-Urkunden p. 467 does not exist; see C. I. A. ir. $809^{\text {b }}, 35$. )
${ }^{2}$ We find on the Monum. Ancyr. col. 5, 26 Artavasdis Greek 'A ${ }^{2}$ taová $\sigma$ Sov, 29 drtaba(zi) 'ApraßáSov, 30 ditavasdi 'Apraováoò, 6, 11 Artavazdis 'Aptaßajov. Cp. Mommsen p. 110, 1 ; p. 118, n. 6 above.-' $\Omega \rho \rho \mu \dot{\sigma} \sigma \delta o u$ Inscr. of Antiochus of Commagene ( $69-34$ в.c.), Puchstein Berl. Monatsber. 1883, 49 ff., col. $1^{\text {b }} 19$; II $^{\text {a }} 10$.-'Apıopap̧ávns is written by Greeks and Latins with $z$; the pronunciation was probably here, where in any case there was
position-length, generally simplified. In Herodotus however (7, 2 f.) we find ('A $\rho \tau 0)$ Ba̧ápls, and I think the Athenians wrote it thus, though now we find in the texts 'Apookaps. (the latter also C. I. A. ir $481 \mathrm{c}^{1}$, 1st. cent. в.c.)
${ }^{3}$ N $\omega$ ßav (Accus.) 'A. Dial.-Inschr. 719; Meister writes here ' $A(\sigma \delta \rho)$ oú $\beta \omega$. The inflection according to the 2ud decl. is certainly strange, especially beside $\mathbf{N} \dot{\omega} \beta a \nu$.
${ }^{4}$ Comparetti Mus. Ital. ir. 131, 142, $162,172,194,202$ f., $210,212,224,674$; hitherto $\zeta$ had not occurred on old Cretan insor. Further discoveries are certainly pressingly wanted, in order to throw light on $\dot{\eta} \lambda \iota$ çial ( $\left.=\dot{\eta} \lambda \wedge \kappa l_{q}\right)$ Folijna ( $=$ Foik $\eta a$ ) nnd such monstrous forms.

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$d_{s}\left(t_{s}\right)$, if they do not actually deny altogether the compound nature of the letter ${ }^{1}$. Moreover in the vulgar writing of the later empire $z$ appears representing $d i$ followed by a vowel: Aziabenicus or Azabenicus, zeta (diaeta), and also for $j(y)$ :cozugi, Zanuari ${ }^{2}$, no doubt in the same way and having the same value as in the common Italian mezzo and the Venetian mazore.

To sum up then, the following seems to be the result of the whole investigation. In ancient times the Greeks possessed the sound-combination $z d$, in őそos є є ${ }^{\prime} о \mu \eta \nu$ etc., and beside it a $d z$ which was developed from $d y$, to which corresponded a $t s$ from ty. The latter sound-combinations however did not hold their ground, the result being that hizdo and nomizdo, the former original, the latter from nomidzo, coincided in sound. To denote $z d$ the Phoenician Sain was taken, which in Semitic signifies simple $z$ (soft $s$ ), partly also as it seems $d z$; similarly Samech ( $s$ ) had to serve for $k s$. In those places where $d z$
(z) si adsumpta non esset, per $s$ et $d$ Mesdentium scriberemus. Cp. Terent. Maur. v. 921.
${ }^{1}$ Mar. Victorin. K. vi. p. 6: sic et $z$, si modo latino sermoni necessaria esset, per $d$ et $s$ litteras faceremus (obscurely p. 34). Vel. Long. K. vir. 51: atque has [tres] litteras ( $x$ also as well as $z$ ) semivocales plerique tradiderunt. Verrio Flacco (time of Augustus) placet mutas esse, quoniam a mutis incipiant, una a c, altera a $d$ (mss. a $p$ ). quodsi quos movet, quod in semivocalem desinant, "sciant," inquit " $z$ litteram per $s l$ scribi ab iis qui putant illame ex $s$ et $d$ constare, ut sine dubio muta finiatur." mihi videtur esse aliud $z$, aliud $\sigma l \gamma \mu a$ каi $\delta \epsilon \lambda \tau a$, nec candem potestatem nec eundem sonum esse, sed secundum diversas dialectos enuntiari. Dores cnim scimus dicere $\mu \epsilon \lambda(\sigma \delta \epsilon \omega$, alios $\mu \in \lambda i \xi \in \omega$, nec ideo tamen eadem littera est, non magis quam cum alii $\kappa є \beta a \lambda \eta \dot{\eta}$, alii кєфа入д̀ $\nu$, alii $\delta \pi \pi а т а$ alii ö $\mu \mu а т а$, alii $\theta a ́ \lambda a \tau \tau a \nu$, alii $\theta a ́ \lambda a \sigma \sigma a \nu ~ d i c u n t, ~ c u m ~$
idem dicant. He goes on to deny that $z$ is according to its actual sound a double consonant; for it is, he says, susceptible of being doubled and in pronunciation it has not, like $x$, a dis. tinct sound at the beginning and end of its utterance. This grammarian then (time of Trajan) evidently pronounced a simple modern Greek $\zeta$. For the very reason that $z$ in itself was not a double consonant, some wished to write Mezzentius in Virgil, K. L. Schneider p. 380.-Martian. Cap. in. § 257 considers the sound of Greek $\zeta$ to be TE.-Against Seelmann Auspr. 308 I remark, that the passage Quintil. xir. 10, 27 f. does not refer to $\zeta$ and $v$, but to $\phi$ and $v$ : quos mutuari solcmus refers to speaking, while he comes afterwards to writing, and in doing so speaks of $f$ (and $u$ ) as compensatory letters belonging to Latin, wanting in Greck. So Spalding and before him Gesner.
"Corssen 1", 215 f.; Seelmann p. 239, 320 ff .
was in use, as long as it held its ground, it too and also $t s$ were represented by Sain = Zeta; with this value it reached the Italians. In other localities it was otherwise, according to the wants of the dialect; in Elis $Z$ was used for spirantic $\delta^{1}$. In the pronunciation $z d$ however the sibilant gradually overpowered and extinguished the $d$; if in spite of this the sound continued to form length by position, the sibilant must have been doubled, and this certainly presents difficulties in the cases where it was initial. There is however no reason to assume that the simplification of the compound took place before the Hellenistic period; possibly the Macedonians were the originators and propagators of the change, the sound $z d$ being strange to them. During this period there is no cause for surprise, if we find $\zeta$ for Sain in transliterations, as in $\Gamma a ́ \zeta a$ and the numerous Hebrew names such as Zaұapías, or for English $j=d \check{z}$, in Indian names such as ' $\mathrm{O} \zeta \eta \nu \eta$ ' Ujjayini. Correspondingly on a bilingual Attic inscription we find Sain as the Phoenician equivalent of $\zeta$ in $\mathrm{B} v \zeta a \nu \tau i a^{2}$.

## SECTION 32.

## Assimilation in Word-nexus; Hiatus.

We have yet to make some general remarks on the combination of words and on their accentuation. With regard to the first point the Greek language appears to stand midway between the Sanskritic method, where the single word is modified by the surrounding words in the main in the same way, as the elements of a single word are modified by one another, and the method of our own language, which allows single words, and indeed any separable parts of a word, entire independence. We have spoken above of the assimilation of the final nasal, probably this was carried out still more in pronunciation than in writing. On the other hand in the case of final $\rho$ and $\sigma$, as well as $\xi$ and $\psi$, assimilation does not take

[^40]cent. в. с.?) : הרנא כעלת בזנתי=E(i)-

place or only in a very slight degree. For instance the combination $\kappa \sigma \theta$ is not suffered in the interior of words, but $\sigma$ is rejected ( $\pi \epsilon \pi \lambda \epsilon \in \chi \theta a \iota$ for $\pi \epsilon \pi \lambda \epsilon \epsilon \kappa \sigma \theta a \iota$ ); in the case of final $\xi$ however this takes place only in very close combination, namely in the case of $\dot{\epsilon} \xi$ and at most also in $\tilde{\epsilon} \xi \pi \tau^{\prime} \xi \lambda \dot{a}^{\prime} \xi$. As regards the prepositions we must remark beforehand that the language, and this is true of Latin as well as Greek, made no distinction between their combination with a verb, where we write one word, and that with a noun; there was the same close connection and consequently the same assimilation ${ }^{1}$. The only way in which we practise this in the case of $\bar{\epsilon} \xi$, is to write $\dot{\epsilon} \kappa$ before a consonant, i.e. to reject the $\sigma$; but the Greeks even in writing assimilated the mute to the following sound with great regularity, the tenuis only standing before $\kappa \tau \pi \chi \sigma$, before $\theta \phi$, and at an earlier period before $\sigma$ also, $\epsilon \chi \chi$ was written, before media or liquid $\dot{\epsilon}^{\prime}{ }^{2}$. And this was so established as a usage in writing, that it is found regularly even on the papyri, though there in the case of $\epsilon \nu$ and $\sigma v v^{\prime} \nu$ contrary to our custom the assimilation is omitted. "E $\gamma \gamma o \nu o s$ also comes under this head, i.e. ' $\epsilon \kappa \gamma о \nu o s$, certainly not to be pronounced erigonos and derived from $\epsilon \nu^{3}$. The Bœotians and Arcadians however assimilated the $\xi$ in quite a different way, namely by rejection
 and also before a vowel $\epsilon \in \sigma \sigma \dot{\alpha} \rho \chi \iota(\grave{\epsilon} \xi \dot{\beta} \rho \chi \epsilon \iota)$ Bœotian. The absence of the preposition $\epsilon i \varsigma \epsilon \in$, for which $\epsilon \nu$ Arcad. iv was employed, made this possible without ambiguity. The numeral
 $\dot{\epsilon} \gamma \delta \dot{\sigma} \kappa \tau v \lambda o \varsigma^{4}$; still even in composition it is just as often or
${ }^{1}$ On those early inscriptions, where the words are still separated by punctuation, the preposition is never separated from the noun; in Latin also such separation is often omitted, or on the other hand it is extended to the prepositions compounded with the verb, v. Corssen Auspr. in. ${ }^{2} 863 \mathrm{ff}$.
${ }^{2}$ Meisterhans 2nd ed., p. 82-4; Dittenb. Syll. Index p. 781. Before $\rho$ i $\gamma$ 'Pupồ Athens ' $\mathrm{E} \phi . \dot{a} \rho \chi$. 1883, 123 l. 58 , on the other hand two instances
of $\dot{\epsilon} \xi$ (above) ; other irregularities also appear (ib. and Meist. 2nd. ed., p. 84), and the intermediate form $\dot{\epsilon} \kappa \gamma$ : e.g. єкर Marıךбlas Ditt. $171^{106} .{ }^{108}$; omission of consonant before $\sigma \kappa$ in $\mathcal{\epsilon} \Sigma_{\kappa \dot{\prime} \rho o u, ~}^{\text {, }}$ Athens ' $\mathrm{E} \phi . \dot{\alpha} \rho \chi$. 1883, p. 123, 1. 62.
${ }^{3}$ 'E $\nu \gamma b$ oos, Dittenb. 132, ${ }^{55}$ is a blunder due to $\epsilon^{\prime} \gamma \gamma$.—Ср. $\dot{\epsilon} \gamma \gamma \rho a ́ \psi a \sigma \theta a \iota$ ib. $126,{ }^{61}=\dot{\epsilon} \kappa \gamma \rho$. l. 63.
${ }^{4}$ Cauer Curt. Sturl. viil. 294 f. ; Meisterh. 85, 125, 2nd ed.; Lebaden


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hiatus did not take place ${ }^{1}$. The Greek poets were at all periods except the latest one, that of Nomnus, contented to allow only those vowels to come into contact, in the case of which elision or crasis was possible; but when the prose writers began to pay attention to this point, they went farther and put limits cven to this kind of combination of distinct words, leaving all words that had any importance and independence separatcd. Accordingly we find $a^{a} \lambda \lambda^{\prime}, \delta^{\prime}, \tau a \hat{u} \tau^{\prime}$, or $\delta \eta \lambda \omega \dot{\omega} \sigma a \not \mu^{\prime} \not a \not \partial$, but according to strict observance nothing like $\grave{\epsilon} \kappa \tau \dot{\eta} \sigma a \tau$ ' 'A $\rho \iota \sigma \tau о-$
 substituted, so that the hiatus did not present itself at all. The same punctiliousness as is well known characterised the Roman poets from the time of Augustus onwards. Moreover it appears that in the time of the empire the Romans avoided this combination of vowels, which had been customary before, no less in ordinary conversation, while the hiatus on the other hand was no longer avoided; the pronunciation at that time must have been, so to speak, purer giving every word and every syllable of a word its proper expression and value. Quintilian gives rules as to how far the use of hiatus is permitted to a speaker, discriminating between the several cases; nevertheless in the nexus of early Latin neither the quantity of the vowels nor their quality made any appreciable difference, except that in an example such as that cited in the ad Herennium as to be avoided, baccae aeriae amoenissumae impendebant, people in ordinary conversation must have omitted the harsh combination and allowed hiatus ${ }^{2}$. But Quintilian cites as an example of dexterous hiatus in opposition to synalepha, the occasional advantage of which he allows, pulchra oratione actas ${ }^{3}$. The
${ }^{1}$ Cic. Orat. 150: quod quidem Latina lingua sic observat, nemo ut tam rusticus sit, qui vocalis nolit conjungere (in pronunciation), 152: sed Graeci viderint : nobis ne si cupiamus quidem distrahere voces (i. e. vocales) conceditur. Indicant orationes illae ipsae horridulae Catonis (in which therefore a hiatus must frequently have been suppressed even in script), indicant omnes poctac, etc. This is
scarcely contradictory to $\S 77$ (on the occasional use of hiatus by the humilis orator).

2 Quintil. Ix. 4, 33 f.-Ad IIerenn. Iv. § 18: fugiemus crebras vocalium concursiones, quae vastam et hiantem orationem reddunt, ut haec est : Baccae etc.
${ }^{3} \S 36$ : et cocuntes litterae, quae ouva入ooфai dicuntur, ctiam leviorem faciunt orationem, quam si omnia
case must have been the same with the Greek of that period. Dionysius of Halicarnassus found the hiatus $\mu \hat{a} \lambda \lambda o \nu \delta_{\hat{\epsilon}}{ }_{o}^{\text {önov}}$ in his Demosthenes, and imagined that this was really intended by the orator ${ }^{1}$, evidently only because there were speakers at that period, who allowed this in speaking and did not get rid of it by synalepha. Demetrius who is somewhat later considers it actually more euphonious, to pronounce the vowels separate
 synalepha кaдá ' $\sigma \tau \iota \nu^{2}$; the people however no doubt even at that period pronounced in the latter way. For even the Greeks of the present day are accustomed to annul the hiatus, at all events in speaking.

## Section 33.

## Transference of final consonants.

In ancient Greek, just as in French, though hardly to such an extent, final consonants were liable to be carried on. The teaching of the grammarians is ${ }^{3}$, that where elision of a final vowel has taken place the consonant preceding this must be given to the following syllable: $\kappa a-\tau \epsilon-\mu o \hat{v}, \vec{a}-\pi \epsilon-\kappa \epsilon i-\nu o v$, just as in French en-tr'eux. Wherever in composition a consonant comes before a vowel it belongs to this vowel without any exception, even in the case of $\epsilon \xi \epsilon i \mathcal{S} \pi \rho o s \delta v \sigma-$; on the other hand, if a consonant follow, the final consonant remains with the preceding vowel; thus $\bar{\epsilon}-\xi \iota-\epsilon \in \nu a \iota, \delta \dot{v}-\sigma \epsilon \lambda-\pi \iota \varsigma$, but $\delta \dot{v} \sigma-\mu o \rho-\phi o s$. In the case of $\sigma$ indeed, as has been already remarked, the right analysis even in the case of simple words was a matter of doubt; hence these rules, which were of course capricious.
verba suo fine cludantur, et nonnunquam hiulca etiam decent faciuntque ampliora quaedam: ut Pulchra etc.
${ }^{1}$ Dionys. Dem. 42.
${ }^{2}$ Demetr. $\pi$. $\dot{\epsilon} \rho \mu$. § 70: $\pi 0 \lambda \lambda \grave{\alpha} \delta \dot{\epsilon}$



$\sigma v \nu a \lambda \epsilon i \psi$ as $\epsilon i \not \pi o ı s ~ к а \lambda a ́ ~ ' \sigma \tau \iota \nu, ~ \delta \nu \sigma \phi \omega \nu \delta-$
 $\tau \epsilon \rho о \nu$.
${ }^{3}$ Theodosius Bekk. Anec. 1127 f.; ed. Göttl. p. 62; Lentz Herodian. in. 390 ff., 407 f. Vid. K. E. A. Schmidt Beiträge p. 134 ff.

We are at liberty to doubt, whether the pronunciation really was so entirely established and certainly whether it continued the same through the different periods. The writer of the great Hyperides manuscript indeed always separates $\boldsymbol{i} \mid \pi \epsilon-$ $\sigma \tau \epsilon \lambda \lambda \epsilon \tau \epsilon$ and so on where the line breaks off, but he writes more frequently $\epsilon i \sigma-a \gamma \gamma \epsilon \lambda i a$ than $\epsilon i-\sigma a \gamma \gamma \epsilon \lambda i ́ a$, and moreover sometimes $\tau a \hat{v} \mid$ rov̀ $\chi$, sometimes ovi $\delta^{\prime} \mid{ }^{\prime \prime} \sigma \tau \iota \varsigma^{1}$. On the long Epidaurian inscriptions, which sing the praises of the miracles of healing worked by Apollo and Asclepius with classic mendacity, the following examples of line-division occur: $\omega \mid \sigma \delta \grave{\epsilon}$

 tion oú|кє́ $\sigma \tau \iota$ oú $\mid \chi \dot{\eta} \kappa \iota \sigma \tau a^{3}$ was certainly established. A transference between article and noun ( $\tau \hat{\omega} \mid \nu \not{\epsilon} \rho \gamma \omega \nu)$ and also between other looser connections may have taken place frequently ${ }^{4}$, but they did not divide so (in writing) except in rare instances, which are paralleled by instances of the opposite such as " ${ }^{\sigma} \sigma$-os of equally little significance. A peculiarity worthy of mention, which appears on the Gortynian inscription and elsewhere sporadically, is the doubling of final $\nu$ in short words in close connection, so that it belongs to both syllables:
 Bücheler is of a different opinion, I think that this pronunciation gives the explanation for corresponding instances of licence in prosody in the Æolian dialect:- $\boldsymbol{a} \sigma \bar{\nu} \nu \bar{\epsilon} \tau \eta \mu \iota$, $\bar{\epsilon} \nu o ́ \chi \lambda \eta \varsigma, \sigma \bar{v} \nu$ $\dot{\partial} \lambda i \gamma \omega^{6}$.
${ }^{1}$ Hyper. Praefat. p. Ix. " 'E $\phi . \dot{\alpha} \rho \chi .1883$ p. 199 ; 1885 p. 15. Cp. later Attic inscr., which also finish the line with a complete syllable: in. 469, $35 \dot{\epsilon} \mid \nu$ ä $\sigma \tau \epsilon \iota, 403,17 \dot{\epsilon} \mid \kappa \tau \hat{\omega} \nu .-$ Inscr. of Antiochus (p. 122, n. 2 above) II. ${ }^{a} 23 \pi \rho o\left|\sigma b \delta o u s ; ~ i v . ~{ }^{a} 15 \pi \rho о \sigma\right| \kappa а \rho-$ $\tau \epsilon \rho \epsilon l \tau \omega \sigma \alpha \nu$ is necessary, because on this inscription $\sigma$ is always separated from $\tau \theta$ etc.
${ }^{3}$ ib.; C. I. A. II. 467, 81 oú $\mid$ $\kappa \dot{\epsilon} \dot{a} \sigma a s, 379,3$ oú | кö入ı $\gamma$ а.
${ }^{4}$ Several occur in the second Hyperides mss. Praef. p. xvi.
${ }^{5}$ Gortyn. Insc. 2, 49; 10, 41; Museo Ital. in. 599 col. vi., 9 ; also $\nu \sigma \sigma$ in $\tau \delta \nu \sigma \sigma \epsilon \pi \iota \beta a \lambda \lambda \delta \nu \tau a \nu s 7,9$; but not $\sigma u v \in \sigma \sigma \alpha \xi a l$ 3, 16, which comes from éкбátтю.—Samos Dittenb. Syll. 132, 12. 15.
${ }^{6}$ Meister Gr. Dial. I. 148 (Bücheler lih. Mus. xi. additional fasciculus p. 9).

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same period the transformation in the pronunciation may be ascertained from the metrical phenomena ${ }^{1}$. Further accurate observation of the Greek poets has of late led to the assumption, that there existed in the language from the earliest period side by side with the variety of pitch a variety of stress following laws coinciding with those of Latin accentuation: namely the stress is said never to have rested on the last syllable and on the last but two only when the penultimate was short ${ }^{2}$. It appears to me however still doubtful whether this is the true significance of the observations. With regard to pitch and tone we are told by Dionysius, that the interval between high pitch and low pitch syllables amounts pretty nearly to a fifth ${ }^{3}$. Now our accentual system, based on the statements of Dionysius Thrax, Dionysius of Halicarnassus and others, distinguishes only three kinds of syllables, high pitch
 which high and low pitch are united (in that order) ( $\pi \rho o \sigma . \pi \epsilon \rho \iota-$ $\sigma \pi \omega \mu \epsilon \in \nu \eta$, so called from the 'drawing round' the accent from high to low $)^{4}$. This kind of accentuation or that corresponding to it, in which the sequence is from low to high, occurs in modern languages also; for instance the ancient circumflex is heard in Italian in the case of double consonants (donna, stella). Since the time of Aristophanes of Byzantium the low pitch syllables have been denoted by $\div$, the high pitch by $\div$, the circumflexed by the combination of the two symbols $\Lambda$, which gradually became rounded. Originally every syllable had its accent: $\Lambda$ È $\Gamma$ ÓMÈNOİ; but in course of time the notation
${ }^{1}$ Weil-Benloew p. 2.55 ff .
${ }^{2}$ Isid. Hilberg, das Prinzip der Silbenwiagung, Wien, 1879. Cp. Hannsen Rh. Mus. xxxvir. 252, who, though agreeing in principle, makes the law of accentuation run quite differently; the last syllable, if long, has the strong stress; if not, the penultimate.
${ }^{3}$ Dionys. Comp. p. 58: סıa入єктои




 the contrary, afterwards page $6 \mathbf{6}$ : $\dot{\eta} \delta \bar{t}$ ó $\boldsymbol{\gamma} \boldsymbol{\gamma}$


${ }^{4}$ Dion. Hal. p. 60 ff.; Dion. Thrax


 $\pi \in \rho l \kappa \lambda a \sigma \iota \nu$ ì $\tau \hat{\eta} \pi \in \rho / \sigma \pi \omega \mu \epsilon \nu \eta$. Varro ([Ser!gii] explan. in Don. K. iv. 531) hands down to us several other names

was simplified; the gravis being placed only on the penultimate syllables of oxytones and perispomena instead of those accents being used, or on final syllables, where the high pitch was partially suppressed in the speaker's context, to serve to denote such suppression ${ }^{1}$. Here the imperfection of this accentual system
 $\dot{a} \epsilon i . .$. all the syllables do not really have the same pitch. Accordingly even in ancient times more accurate systems were put forward, which, we may say, fortunately never attained general circulation, but unfortunately have not even been properly handed down to $\mathrm{us}^{2}$. For example many distinguish a $\mu \epsilon ́ \sigma \eta$, which was recognized also by the Roman Varro; this middle pitch probably comprised besides the final syllables which properly speaking were oxytone all syllables following next after a high pitch and likewise the second half of a syllable having the circumflex ${ }^{3}$. Glaucus of Samos made the number as many as six: à $\nu \epsilon \iota \mu \epsilon ́ \nu \eta(=\beta a \rho \epsilon \hat{i} a), \mu \epsilon ́ \sigma \eta, \dot{\epsilon} \pi \iota \tau \epsilon \tau a \mu \epsilon ́ \nu \eta$
 sixth accent, of which not even the name or indeed anything else concerning it is established, except that it belonged to the subdivisions of the circumflex ${ }^{4}$. The $\dot{a} \nu \tau а \nu a \kappa \lambda \omega \mu \epsilon ́ \nu \eta$ however has its origin in the union of gravis and acute on the same
 occupied more than one mora, appears to have been the
${ }^{1}$ See Bekk.Anec. 674; confirmation of the ancient writing in the Egyptian fragment of Alcman. The papyrı of the Iliad in London (Pap. Bankes and Pap. Harris) have likewise examples of several accents on the same word: ÉחĖCCEXONTO; still both in them and in the fragment of the Iliad in the Louvre (Pap. 3) the $\beta a \rho \epsilon i a$ is principally employed to represent the oxytone or circumflex which properly belongs to the following syllable: AФNEİOr, $\Delta O I ̇ O I, ~ \theta N H T ̀ \Omega I, ~ E I ̇ E I ~(P a p . ~ B) ;$.
 H.) ; $\Pi \dot{A} \mathrm{P} \Delta, ~ \Delta \dot{\Upsilon} T \Delta \mathrm{P}$, but $\Upsilon \Psi O \hat{\Upsilon}$ (Pap. L.). In these instances it is remark-
able, that this gravis is often pushed so far to the right; but this must not lead us to suppose that it belongs to the last syllable; for we also find IIOAIONTE (the symbol being over (0), and in words with more than one gravis AMOİBḢ $\triangle I C, \triangle A \Phi O I ̇ N E ̀ O N$.
${ }^{2}$ See Varro l. c. p. 528 f.
${ }^{3}$ Weil-Benloew p. 13 fl.; Misteli Ueber gr. Betonung (Paderb. 1875), J. Hadley Curt. Stud. v. 417 ff.

* The mss. give HC (joined to the preceding word); early editions give $\nu \eta \dot{\eta} \tau \eta$ after a conjecture of Wase, Weil suggests $і ̈ \sigma \eta$, Keil $\pi \epsilon \rho \iota \kappa \epsilon \kappa \lambda \alpha \sigma \mu \epsilon ́ \nu \eta$.


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accentuation of all long vowels to which we give the acute ${ }^{1}$. The grammarians, who only employed the accent for the texts of poets who wrote in some particular dialect, rightly considered the system of Glaucus too complicated; but the real language may nevertheless have been still more complicated in this respect, and this illustrates well, what terrible difficulties Greek pronunciation must have presented to foreigners. Our position is easier, since no one can control us, and though perhaps it is not right to be entirely indifferent as regards a better or worse pronunciation, there is no nced on the other hand to be pedantic, as though the ancient Greeks might some day rise from their graves and call us to account for murdering their beautiful language.

[^41]
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$e 0$; the former is predominant throughout, except in the case of $i$. Those vowels remain without any special designation in this respect, which are spoken too quickly to allow of their exact quality being observed ("voyelles reduites"). With regard to mas (plural of oblique cases of $\boldsymbol{\epsilon} \gamma \omega$ '), when it is itself unaccented and follows an accented syllable, Psichari remarks, that it would be more correctly represented by mäs, the $a$ here inclining towards the e.- $\tilde{a} i$ denote nasal vowels similar to the French sound.-The quantity is however according to our authority just as fluctuating as the quality; it depends on quickness of pronunciation, on context, on the intention of the speaker; a word may have a different quantity and quality of its vowel when isolated to that which it has in connected speech.-In the case of the consonants I have made use of the Greek letters $\delta \theta \times$ to denote the spirants (English this, think; German ach); $k^{\prime}$ expresses the palatal $k$ ( $k y$, articulated in the middle of the palate) ; $s$ and $z$ the hard (voiceless) and soft (voiced) sounds.

As regards matters of detail I add (after Psichari) the following definitions and rules of pronunciation :
(a) $O$ is in general open; thus in all cases above with the exception of the final syllable of $\dot{a} \lambda \lambda \omega \nu \omega \nu$, where owing to the nasalized sound ( $-n \tilde{o}$ dis) produced by the closely connected tis (dis), the sound became closed in the pronunciation of the individual taken as a standard. Psichari himself however does not pronounce so,
 but $\delta \grave{\varphi} \nu \tau \rho \epsilon \chi^{\prime} \omega$. In his own pronunciation he gives the closed sound
 péffọ. This as will be seen does not agree with the notation given above, but Psichari states that this pronunciation of final 0 as $o$ is very widely spread. On the other hand he gives ftẹ̣̆̆ as his pronunciation of $\pi \tau a i \omega$; in the case of $f\left(\vec{e} r \stackrel{!}{!}\left(\pi \tau \epsilon \rho \sigma^{\prime} \nu\right)\right.$ he leaves the $e$ without designation.
(b) Accented $i$ is almost always given as closed; when unaccented it appears to fluctuate; in both cases the origin of $i$ (from $\iota \eta v$ etc.) is perfectly indifferent. With reference to the dialectal pronunciation of $v(o u)$ as $\ddot{i}$ noticed above Psichari remarks that the statements of G. Meyer (Gramm." p. 10s) are very accurate; M. speaks there of the pronunciation as in and gives as examples
 ки́ $\rho \tau о s . ~ P s i c h a r i ~ h o w e v e r ~ i s ~ i n c l i n e d ~ t o ~ r e g a r d ~ t h i s ~ i \ddot{~ i n ~ a l l ~ c a s e s ~ a s ~}$ a modern development after palatals, not as a survival from an older period; $\tau v \rho i$ will be found to be in the dialect, where such phenomena occur, not türi but tsüri with palatalisation of the $t$.
(c) The transcription $\pi$ ov $\bar{\rho} o^{\prime} \nu$ boniró militates against the rule we have mentioned above, according to which unaccented ir ( $\iota, \eta \rho, v \rho$ ) must become er. I assume that the Chiot thought it necessary to pronounce this word with its ecclesiastical associations ("the Evil One") in accordance with the writing. The apparent retention of the $e$-sound of $\eta$ in the dialect of Trapezus is much doubted by Psichari: $\tau \epsilon \prime \nu=\tau \dot{\eta} \nu,{ }^{" E} E \lambda \epsilon \omega \epsilon s$ etc. might rest on modern phonetic laws; a scientific investigation of the matter has yet to be undertaken.
(d) Both $\beta a \sigma i \lambda \epsilon i \alpha$ and $\dot{a} \mu a \rho \tau i a$ remain free from the detrition of $\iota$ before a vowel following, which has been referred to above (vasilyá, amartyá). The reason again appears to be, that they are ecclesiastical words, which are not subject to popular treatment.
(e) $\mathrm{N} \dot{\alpha} \gamma \iota a \sigma \tau \hat{\eta}$ nayast $i$ is written by Psichari with $\tau$, though as a rule in such cases the written form contrary to the pronunciation retains the $\theta$. The rule that two voiceless spirants, just as two tenues, are not tolerated in immediate proximity, is in general extended to $\sigma$ also, except that the ordinary pronunciation does not follow this out consistently in the case of $\sigma \phi$. On the other hand $\phi \sigma$ is not allowable (except in the artificial pronunciation of the educated) : $\delta o v \lambda \epsilon v^{\prime} \sigma \omega$ pr. $\delta o v \lambda \epsilon ́ \psi \omega$, and so always in the interior of words, while in the case of final syllables $\epsilon v s$, i.e. $\epsilon \phi s$, becomes $\epsilon \mathrm{s}: \beta a \sigma \iota \lambda \epsilon$, 'O $\rho \phi$ '́s. There are indeed no words, which terminate with two consonants in the nominative.-No exception is taken to the collision of voiced spirants (such as $\beta \delta, \epsilon v \delta e v \delta$ ).

In order to place in a true light the contrast of the old and the new, I add myself a transliteration of the Lord's Prayer, according to the original text, in the Hellenistic pronunciation of that period, without however venturing to denote the quality of the vowels; for the popular pronunciation of the first century A.D. is not known with sufficient accuracy to render that possible. Only in the case of oc I have given the closed pronunciation of the 0 . I denote the
aspirates by $k^{i}, p^{\prime}, \ell^{2}(=k+l, p+l, t+l) ; s$ and $\approx$ are the hard and soft s -sounds. I give the accents in the ordinary manner, except that I dispense with the grave in the case of monosyllabic words.

Pătěr hōmôn hǒ čn tọis ūrănọis, hă(g) făst ${ }^{t}$ étō tǒ ưnơ̆mắ (tōnǔmá?) sū, čltéctō hē băsĭléà (băsǐliā) sū, gĕnčtecétō tǒ tećlēmắ sū hōs ěn ūrănô. kai ěpì̀ gês. Tŏn ắrtǒn hēmôn tǒn ěpiúsiơn dǒs hèmín séměrŏn, kai ắp‘̛s hēmin tă op ílémătă hēmôn (tōpīilémăt'ēmôn ?), hōs kai hēmis (k'ēmis ?) ăpećkăměn tọis ŭpillčtais hẻmôn, kai mē ísènčrikēs hēmâs īs pirăzmớn, âllằ rhûsai (rhûse ? ? hēmâs ăpù tû pŏnērû.

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[^0]:    ${ }^{1}$ Aldi Manutii de vitiata vocalium et diphthongorum prolatione $\pi$ d $\rho \epsilon \rho \gamma o \nu$,
    first printed（1512）in the appendix to the Aldino edit．of the＇Emıто⿱亠䒑 $\boldsymbol{\tau} \tau \hat{\omega}$

[^1]:    ${ }^{1}$ Printed in Hav. ir. p. 181-468 (the Chancellor's edict p. 205-207).

    2 Hav. p. 469-574. According to Hav.'s Praefatio this was published in 1508 by Rob. Stephanus.
    ${ }^{3}$ Both directly or indirectly victims of the massacre of St Bartholomew (1572). Their participation in the

[^2]:    ${ }^{1}$ H. Sweet, History of English Sounds, Transactions of the Philol.
    A. Ellis on E. English Pr., ib. extra Society, 1873—1874, p. 461 (517). 1875.

[^3]:    ${ }^{1}$ Strabo xiv. p. 648, spoaking of the ، of the Dative.
    ${ }^{2}$ Cp. Quint. 1. 7. 15 (of the Ro-
    mans): Diutius duravit, ut ei jungendis eadem ratione qua Graeci $\epsilon$ uterentur (for a long $)^{\text {). }}$

[^4]:    ${ }^{1}$ Frankfurter Philologenvers. (1861), $\quad 3$ J. Psichari, Rer. critique, 1887, p. 184. p. 262 ff .

[^5]:    ${ }^{1}$ Lücking, al. ̈llestén franz. Mundarten, p. 106 ff .

[^6]:    ${ }^{1}$ Cp. on this proof ns well as on other methods of proof the meritorious
    exposition of K. Zacher: die Alussprache des Criech., Leipzig, 1888.

[^7]:    ${ }^{1}$ Dionys. $\pi . \sigma \nu \nu \theta \epsilon \sigma$. p. 77 R. ( ${ }^{\prime} \sigma \chi \alpha-$ $\tau o \nu ~ \delta \grave{\epsilon} \pi a ́ \nu \tau \omega \nu \tau \grave{c} \iota) ;$ Hermog. $\pi$. i $\delta$.
    p. $225 \mathrm{~W} .291 \mathrm{Sp} .\left(\tau \grave{o}\right.$ ¡ $\ddot{\eta}_{\kappa \iota \sigma \tau а ~} \sigma \epsilon \mu \nu \grave{\eta} \nu$

[^8]:    ${ }^{1}$ K. Foy, Lautsystem d. griech. ${ }^{*}$ Foy, p. 84.

    Vulgärspr., Leipzig, 1879, p. 84.

    2 id. p. 86.
    ${ }^{3}$ Psichari Revue Crit. 1887, p. 266.
    ${ }^{5}$ The theory of the 14 vowels is developed by G. Hermann de emend. rat. Gr. gr. p. 49 fi.

[^9]:    1 Rumpelt d. naturliche System des Sprachlaute p. 47.

    2 For fucts of epigraphy I refer the

[^10]:    reader once for all to the classical book of A. Kirchhoff : Stuclich zur Geschichte des griechischen . Ilphabets.

[^11]:    ${ }^{1}$ In Paros, Thasos, Siphnos conversely $\Omega$ was written for $o(o v), 0$ for $\omega$ : $\Sigma \Omega \mathrm{I} \sigma o l, \mathrm{~T} \Omega \tau \hat{v}, \mathrm{TON} \tau \hat{\omega} \nu$, see Kirchhoff p. 65 ff .

    2 This was first explicitly stated, though not with the necessary general

[^12]:    ${ }^{1}$ I follow here the excellent essay Sprache, Kuhn's Zeitschr. xiv. p. 48 ff. of Dictrich, Zum Vocalismus der griech.

[^13]:    ${ }^{1}$ Kirchhoff, p. 88 ff.; Röhl Inscr. Gr. antiqu. no. $15,20,16,23$. As a rule I intentionally refrain from giving the epigraphic forms of the symbols. That $\Delta \epsilon \iota \nu i a s$ has the real $\epsilon \iota$ is shewn by the fact that archaic inscriptions everywhere else write EI in names derived from $\delta \epsilon \iota \nu o ́ s: \Delta \epsilon \iota \nu o \delta \iota \kappa \eta o$ and $\Delta \epsilon \iota \nu о \mu \epsilon \nu \epsilon o s$ Bustrophedon Inscr. Naxos; $\Delta_{\epsilon} \epsilon \nu 0 \mu \epsilon$ $\nu \epsilon o s$ Hiero's helmet, Röhl 510 ; $\Delta \epsilon \iota \nu a-$

[^14]:    ${ }^{1}$ Dietrich l. c. p. 51 ff. Cauer Curt. Stud. viri. 241 ff . OT is always written for $\bar{o}$ on the inscr. of Keos R. 395. In this dialect therefore the coalition took place very early. The Asiatic-Ionic insor. generally distinguish correctly (Chios R. 380; Halik. 500), in Chios 382 however we have тôto; Teos 497 b, 26 $\beta$ ap $\beta a ́ \rho o u s . ~ C o m p . ~$ Erman Curt. Stud. v. 284 f. On the Attic treasurer's account C. I. A. i. 128 (01. 91, 2), TOTON and TOTO stand almost without exception, though it is true the older documents of a similar nature and also most of the later ones shew TOYTON and TOXTO quite withont exception (s. no. 117-

[^15]:    ${ }^{1}$ Orchom. Bull. de corr. hell. ini. $454=$ Dial. Inschr. 470 (about 330 b.c.); $v$ is written here as well. The Theban inscription on the contributions to the Sacred War ('A $\theta$ '̀ $\nu a c o \nu$ inr. 479, Dial. Inschr. 705) has ou only for $\bar{v} . \quad$ Cp. R. Meister $G r$. Dial. 1. 231 f .
    ${ }^{2}$ Ahrens D. D. p. 124 ff.; G. Meyer ${ }^{2}$ p. 103 f.

    3 But Kovoovpeis = Kivporoupeis on the very late Lakon. inscr. C. I. Gr. 1347 and 1388 comes under this head (Ahrens l. c.). Among literary monu-

[^16]:    ${ }^{1}$ R. Meister Gr. Dicl. i. 233. But also iove ('letraphthon!!) Chaeronca Dial. Inschr. 382.

    2 Foy p. 86 ; Definer C. Stud. iv. 298 ff.; (i. Meyer ${ }^{2}$ p. 108.
    : Meyer produces from the modern Greek of southern Italy $\chi$ yuno $=\chi \dot{\nu} \nu \omega$ $\chi^{\ell} \omega$, á $\chi$ yuro á $\chi u p o v$, from Church Sla-

[^17]:    ${ }^{1}$ C. I. Gr. 2909 (Mykale) $=$ Bechtel Inschr. d.ion. Dial. 144. The reading of this inscription is however by no means certain.
    " Sappho r. $2 t$ кшїк $\dot{\epsilon} \theta \dot{\epsilon} \lambda о \kappa \sigma a$, Epich. 19 Ahrens $\kappa \omega \dot{v} \delta \dot{\delta} \nu \dot{\partial} \epsilon \hat{i}$. On the other hand кouk on a Papyrus of the Ionic dialect edited by Petrettini, $P^{\prime}(1)$. Greco-Ligizj (Vienna, 1826) line 15 (cp. p. 5.5, n. 2), and more accurately by Wesscly, d. gr. P'apyri d. hais. Sammlungén W'cons (Vienna, 1885).
    as Riemann Isull. de corr. h. m. 500 f . (after Wecklein C'ur. 'pigrouph. 33 fi.). We find, it is true, cix $\chi$ act in

[^18]:    ${ }^{1}$ Usener Fleckeisen's Jahrb. 1865, p. 236 ff . But $\hat{\omega} \delta \epsilon$ without $\iota$ is shewn to be correct by the metrical inscr. Bull. de corr. hell. vir. 61 (Thessaly, poetical dialect; $\sigma \omega \dot{\omega} \zeta \zeta \omega$ in the same);
     ments relating to the building of the Arsenal, C. I. A. ir. 1054,78 f. 24 , and the inscr. Röhl $552^{n}$ (Olympia).
    ${ }^{2}$ Strabo xiv. p. 648: $\pi 0 \lambda \lambda$ ol qà $\rho$
    
     " $\chi$ ov.
    ${ }^{3}$ Thraex, Thraecius, Thraecidicus in Cicero (only Sest. 94 and Rep. in. 9 with $a$; the writing with $c$ is a cor-

[^19]:    ${ }^{1}$ Ahrens D. A. 185. Meister Gr. Dial. I. 223 f. $\Delta о \rho \kappa \epsilon i \delta a s$ Orchomenos about 330, Dial. Inschr. 470 (ib. 502 ; as regards the formation cp. Meister in Jezzenberger's Reitr. vi. (i1).

    2 Foucart Liull. iII. 136; Meister

[^20]:    ${ }^{2}$ Bu $\omega \tau \hat{\omega} \nu$ ，title of Athena Itonia， Bull．de corr．hell．ix．430．The case form rod can become $\tau v i$ as well as roi．
    ：Ahrens I）．A． 193 f ；Meister Gr．Dial．i． 249 f．The case will be

[^21]:    ${ }^{1}$ Wescher-Fouc. no. 108, 435, 82, 365. Cp. Bull. de corr. h. v. 42,= Dial. Inschr. 1539, Dittenb. 294, Phokian official record from beginning of 2nd cent. (after 181 в.c., Dittenb.), in which $\Sigma \tau i \rho \iota$ occurs (by $\Sigma \tau \epsilon \epsilon \dot{\rho} i \omega \nu$ ) and $\kappa \lambda \alpha \rho \omega \sigma \hat{i}$, and further what was said above on the final confusion of Bootian $\epsilon \iota$ with $\iota$.-For Athens cp. Meisterh. p. 38 f.
    ${ }^{2}$ Papyr. 1 of the Louvre, which is by no means the most incorrect, furnishes these and other examples. In the Papyrus published by H. Weil 1879, which contains fragments of Euripides and other poets, we find
     $\lambda \epsilon i \sigma \sigma \eta s$, Kúmp $\epsilon \delta o s$ and others without number.
    $3 \Sigma \omega \tau \grave{p} a a^{(-\rho a \nu)}$ C. I. A. il. 469, 22 ; in. 368; $\chi^{\ell} \rho a$ Papyr. L. no. $50 \tau \hat{\eta}$ $\chi \in \rho \epsilon \ell, \chi \epsilon \rho \rho s, \chi \epsilon \rho \sigma s($ and $\chi i \bar{\rho} \rho a \nu) ; 61$ col. 5 $\chi^{\ell} \rho a$; do. l'ap. Lond. (Wessely Wiencr St. 188(6, 203) xliv. 11. Cp. ä $\pi \eta \rho o \nu$

    Scott Fragm. Herculan. p. 219 f. (col. 15,29 ); but the same gives also $\delta \eta \nu a$ for $\delta \epsilon i \nu a$ twice Append. xxxviii. l. 9 (Philod. $\pi$. 日aváav $\Delta$ col. xxxvir.). This calls to mind the Lat. $i$ pingue, written ei e i.-Lat. cyperus (-um) кúnt(i) pos; but Epirus pirata etc.-'Екє $\begin{aligned} & \text { прia Am- }\end{aligned}$ phictyonic decree C. I. A. п. 545 1. 48, 49 (the H which was suspected by Ahrens has been confirmed for both places by U. Köhler and by myself); Eưx $\dot{\rho} \rho o v$ Delph. Dittenb. Syll. 198, 73.
    ${ }^{*}$ The examples are from Pap. 1. both sides (on reverse side = Pap. 63, col. 2 रpías). M $\eta \nu i \eta{ }^{\prime} a \nu$ Pap. 1, col. 15, wrongly read $\mu \eta \nu \kappa \kappa a \nu$ by editor and wrongly emended to $\mu \eta \nu$ calav; cp. $\mu \eta u$ iciors Pap. 61, col. 8.-At Delphi
    
    ${ }^{5}$ C. I. ©ir. 2060, Dial. Inschr. 3059.
     perfect, cp. Dıul. Inschr. 3078, Dittenb.
     Bull. de corr. h. viir. 445.

[^22]:    ${ }^{1}$ Pap. L. 1, col. 17, 11.
    ${ }^{3}$ Col. 5, 13; reverse side col. 4, 5, 19.
    ${ }^{2}$ Wessely W. Stud. 1886, 206.
    ${ }^{4}$ Col. 4, 17.

[^23]:    ${ }^{1}$ See also Gellius xvi. 12. 8: (Varro) M. Catonem et ceteros aetatis eius feneratorem sine a littera pronuntiasse tradit.
    ${ }^{2}$ Prisc. 1. 52 ; Seelmann p. 163 f.
    ${ }^{3}$ Quintil. 1. 5. 17: quod $\sigma \nu \nu a l \rho \in \sigma \iota \nu$ et $\sigma u v a \lambda o 九 \phi \eta^{\prime}$ Graeci vocant-, qualis est apud P. Varronem: tum te flayranti
    deiectum fulmine Phaethon. Nam si esset prosa oratio, easdem litteras enuntiare veris syllabis licebat.
    ${ }^{4}$ Corssen i." p. 692 f. Seelwann 224 f .
    ${ }^{5}$ In Coptic loan-words $\epsilon$ was written, Stern Kopt. Gr. 36.

[^24]:    ${ }^{1}$ Eustath. on Il. A. 406, Od. $\mu .104$ (long ago cited by the followers of Reuchlin).
    ${ }^{2}$ Curtius Etymol. ${ }^{5}$ p. 658 f.
    ${ }^{3}$ This transition is favoured by Beermann, Curt. Stud. ix. 41 f.
    ${ }^{4}$ On anquina see Boeckh Seewesen 152.
    ${ }^{5}$ K. L. Schneider Gramm. I. 1, 77,

[^25]:    ${ }^{1}$ Eoutias ancient Doric (Sparta?) Röhl no. 68; $\Sigma$ reovins also with Or Styra Röhl $372^{355}$.
    ${ }^{2}$ Inscrip. of Eleusis C. I. A. iv. $27^{\mathrm{b}}, 40$.
    ${ }^{3}$ Dietrich in K. Zeitschr. xiv. 56; Cauer l. c. Also in the late inscrip. C. I. A. iv. $22^{\mathrm{a}}$ ©POYPON and $\Phi$ POPIDE side by side. Cretic $\phi \rho \omega \rho \rho \circ o \nu$, Bull. de corr. hell. rx. 8, l. 8.
    ${ }^{4}$ Inscrip. of Idalion. Dial. Inschr.

[^26]:    ${ }^{1}$ Le Bas in. 352 ${ }^{1}$, 35, 27.
    ${ }^{2}$ Erman in Curt. Stud. v. 294; C. Curtius Progr. Wesel 1873; Hausoullier in Bull. de corr. hell. iv. 51; G. Meyer ${ }^{2}$ p. 135 f. The examples are from Chios, Samos, Erythra, Halicarnassus and other towns of the Asiatic mainland (also a coin of the Doric Cnidus has E $\delta \beta$ whos, Hauss. 1. c.); from Phanagoria C. I. Gr. 2121,
     Ionic papyrus so often mentioned has $v$ always, but omissions of the preceding

[^27]:    ${ }^{1}$ KevevFbv Dial. Inschr. 20; ApolIon. $\pi$. $\begin{aligned} & \text { E } \\ & \text { 亿 }\end{aligned} \rho \rho$. p. 559.29 (p. 149 ed. Schneider-Uhlig); see Giese $\boldsymbol{A}$ eol. Dial. 272.
    ${ }^{2}$ In the Egypt. frg. col. 2, v. 29. Also in Alcæus frg. 41 Bergk ${ }^{t} \gamma \chi \in \check{\omega} \epsilon$ is handed down, Athen. x. 430 A , although in ib. 430 c. xI. 481 a $\nmid \gamma \chi \epsilon \epsilon$.

[^28]:    ${ }^{1}$ Sterret (p. 80, n. 5 above) no. 279.
    2 Kateok. C. I. Gr. 3693 (Cyzicus),
    2015 (Callipolis), Bull. de corr. hell. 1888, 202 (Kios); $\dot{a} \pi \epsilon \lambda .5922^{b}$ (Rome).

[^29]:    ${ }^{1}$ In the modern dialects according to Psichari (cp. Rev. crit. 1887, 264 n. 4) the vanished nasal has developed a doubling of the consonant: a $\begin{aligned} & \text { 右os } \alpha \nu \theta o s \text {, }\end{aligned}$ niff $\nu \dot{\prime} \mu \phi \eta$, to $\dot{\chi} \dot{\chi}$ iro $\tau \delta \nu$ रoîpov, toyyero
    
    ${ }^{2}$ C. I. $A$. II. $9.14{ }^{\text {b }} .86,14,31.369$ etc. So also $\dot{\epsilon} \sigma \tau \dot{\eta} \sigma a \nu \tau \iota ~ i . e . ~ \dot{\epsilon} \nu \sigma \tau$. $834^{\mathrm{bII}}, 28$. Cp. Giese Aeol. Dial. 83 ff.; Cauer in Curt. Stud. viil. 295 ff.; Meisterhans ed. 2, p. 86 ; Hecht Orthogr. dial. Forschungen 1, Progr. Königsb.
    1885. The Ionic Inscript. of Halicarnassus Bull. de corr. hell. iv. 303 has sometimes $\dot{\epsilon} \lambda$ Avpıб会 $\begin{gathered}\text { sometimes } \dot{\epsilon} \nu\end{gathered}$ Avpi $\sigma \hat{\omega} \ell$; the older one R. 500 1. 41 $\tau \hat{\omega} s \sigma \nu \mu \pi \dot{\alpha} \nu \tau \omega \nu$.
    ${ }^{3}$ Consistently carried out e.g. on the Megarian inscrip. C. I. Gr. 1052 (Dial. Inschr. 3003): in the rescript of Cn . Manlius to the inhabitants of Heraclea Latmi, C. I. Gr. 3800, Le Bas v. no. 588, Dittenb. 209 (only l. 9 $\pi \rho \delta \nu o l a \nu \pi$ тоєî̃ $\theta a \iota)$.

[^30]:    ${ }^{2}$ Foy p. 77, also à $\nu \alpha \sigma \tau \epsilon \nu \alpha \mu \dot{\prime} s(-\alpha \sigma \mu o ́ s)$, $\beta \rho \epsilon \mu \epsilon \nu 0$ = $=(\beta \epsilon) \beta \rho \epsilon \gamma \mu \epsilon \nu$ оS (Psich.).
    ${ }^{3}$ Röhl no. 360 Ægina, according to Comparetti's reading which is rightly approved by Röhl (Jálresber. f. AW. xxxvr. [1883] p. 2). $\Lambda$ HEON Attic vase (archaic) ${ }^{\prime} \mathrm{E} \phi . \mathrm{a}^{\prime} \rho \chi .1886$ p. 87.
    ${ }^{4}$ Dionys. de compos. p. 79 R. : $\boldsymbol{\text { d̀ }}$ ò
    
    
    
    ${ }^{5}$ Foy p. 3 f.
    ${ }^{6}$ Cauer Del. no. 23 ( $=84$ ) $=$ Röhl 343, = Dial. Inschr. 3189.

[^31]:    1 The definitions $\pi \rho o \sigma \varphi \delta l a \psi i \lambda \dot{\eta}$ or $\pi \nu \epsilon \hat{v} \mu a \psi i \lambda o ́ \nu$ (the latter properly speaking an unsuitable expression) can mean
     of breath, and Seelmann p. 262 is mistaken, when he takes the expressions $\delta a \sigma \epsilon \hat{i} a$ and $\psi \iota \lambda \dot{\eta}$ to mean not something absolutely opposite, but only different degrees of aspiration. Latin writers have been (as so often) awkward in their translation of the terms, and the passages spoken of by $S$. from their grammarians, which would not allow to $h$ the value of a letter, have no value for phonetics whatsoever, but only shew like countless others the dependence of Latin grammar on Greek. For my part I see no reason for the as-

[^32]:    ${ }^{1}$ G. Meyer ${ }^{2}$ p. 243.
    2 The latter is Argive, R. no. 42, 44 a.
    ${ }^{3}$ Athen. Ix. 397 ef. (Attic vase inscription viüs, C. I. Gr. 8202, cp. 8203.)
    ${ }^{4}$ Cauer Stud. viri. 240 f., Meister. hans ed. 2, p. 67. In Elision IIAPII. E $\triangle$ POI C. I. A. I. 34 and iv. $116^{\circ}, 10$, MEAHENI 1.77, 6 (also with pleonasm

[^33]:    ${ }^{1}$ The pronunciation of $\kappa \lambda$ as $\gamma \lambda$ which has often been maintained is denied by Psichari for the general language.
    ${ }^{2}$ Foy p. 47.

[^34]:    ${ }^{2}$ Dion. Hal. Comp. p. 78 R.
    ${ }^{3}$ Dion. Hal. Comin. p. 83 f.: $\pi \phi$

[^35]:    ${ }^{1}$ Aristid. Quintil. p. 89 Meib. (54 Jahn): $\tau \hat{\omega} \nu \dot{\alpha} \phi \dot{\omega} \nu \omega \nu \tau \grave{\alpha} \mu \notin \nu \delta \delta_{\grave{\alpha}} \tau \hat{\omega} \nu \chi \epsilon \iota-$ $\lambda \epsilon \omega \nu$ Хєîтal $\mu o ́ \nu \omega \nu$, тồ $\pi \nu \epsilon \dot{u} \mu a \tau o s ~ \tau \grave{\eta} \nu$
    
     $\kappa \tau \dot{\epsilon}$. (The description is less lucid in the case of the gutturals and dentals.) Then: $\tau 0 u ́ \tau \omega \nu \quad \delta \grave{\epsilon} \tau \grave{a} \mu \hat{\epsilon} \nu \quad \eta \rho \epsilon \mu a l \omega s \pi \rho o a ́-$
    
    

[^36]:    
    
     $\epsilon i \rho \eta \tau \alpha \iota \kappa \alpha i \tau \hat{\eta} s \dot{a} \mu \phi о \tau \epsilon \rho \omega \nu \epsilon \backslash \lambda \eta \chi \in \phi \dot{v} \sigma \epsilon \omega \omega$. Similarly only more briefly expressed before p. 44 (29).
    ${ }^{2}$ Curtius Grundz. ${ }^{5} 414$ ff.; W. Schmitz, Beitr. zur lat. Sprach-und Litteraturkunde p. 118 ff.

[^37]:    ${ }^{1}$ R. v. Baumer $A$ spiraten und Lautverschicbung p. 96 ff.; W. Roscher Curtius Sturl. 1, 2, 117 if.

    2 Quintil. I. iv. 14: quin fordeum foedosque (scil. was the pronunciation in the mouths of ancient Romans for hordeum hoedor), pro aspiratione velut (other mss. vel $f$ ut ; Christ. Hahn) simili littera utentes; nam contra Graeci adspirare ci (others read $\phi$ for

[^38]:    ${ }^{1}$ Ebel in Kuhn's Zeitschr. xiri. 266 ff .
    ${ }^{2}$ Plato Kratyl. 427 a: $\delta \iota a ̀$ тoû $\phi \epsilon \hat{\imath}$
     öть $\pi \nu \epsilon \nu \mu a \tau \omega \dot{f} \eta \tau \dot{\alpha} \gamma \rho a ́ \mu \mu a \tau a, \pi \alpha ́ \nu \tau a \tau \dot{a}$
     giver of the names), oîov tò $\psi u \chi \rho \dot{o} \nu$
     passage is quoted by v. Raumer p. 101,

[^39]:    ${ }^{1}$ See Plat. Crat. 427 a: $\tau \hat{\eta} s$ тồ $\delta \in \lambda \tau a \sigma u \mu \pi \iota \epsilon \sigma \epsilon \omega \mathrm{~s}$ каi $\tau о \hat{u} \tau \alpha \hat{v}$ каil à $\pi \epsilon \rho \epsilon i$ $\sigma \epsilon \omega s \tau \hat{\eta} s \gamma \lambda \omega \prime \tau \tau \eta s$.
    ${ }^{2}$ Theaet. 203 в: rồ $\delta^{\prime}$ ầ $\beta \hat{\eta} \tau a$
     72).
    ${ }^{3}$ S. Dittenberger Herm. vi. 302 ff., who has only two exx. from the time of the republic of $\beta$ for $v$ (yet in Delos about 180 в.c. Bull. de corr. h. TI. 38, 43, Dittenb. Syll. no. 367, 86, 130 $\Lambda \iota \beta l o v$ B $\iota\left(\frac{10 v}{}\right)$; the Monumentum Ancyranum also still shews ov consistent-

[^40]:    ${ }^{1}$ See p. 113 above.
    ${ }^{2}$ Corp. Inscr. Semitic. no. 120 (3rd.

[^41]:    ${ }^{1}$ Boeckh de metr. Pind. p. 47, 52 ; Weil-Benloew p. 12 fi. ; Corssen ri² p. $^{2} 803$.

