STUDIES IN THE HISTORICAL PHONOLOGY OF GERMAN

Presented for the degree
of
Doctor of Philosophy
by
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PREFACE

This thesis is the result of several years of studying and teaching the historical phonology of German, both in Germany and Great Britain.

I am particularly indebted to the late Professor W.I. Lucas, (Department of German, University of Southampton), whose help and encouragement were deeply appreciated, and to Professor L.E. Schmitt, (Director of the 'Forschungsinstitut für deutsche Sprache', University of Marburg), who kindly allowed me to use the manuscript material there.

My sincere thanks are also due to Dr. P.F. Ganz, (Hertford College, Oxford) and to the many others, with whom I had long and fruitful discussions on this subject. I must also record my gratitude to my many friends in German speaking Europe, who, consciously or unconsciously, acted as informants.

I should also like to thank Professor R.B. Le Page and my colleagues at the University of York, contact with whom proved to be the final stimulus needed to complete this thesis.

Last, but not least, my thanks are due to Mrs. J. Premaratne for her very conscientious help with the typing, and, of course, to my wife, without whose tireless help and support this work would not have been possible.

C.V.J.R.
ABBREVIATIONS AND SYMBOLS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<tr>
<td>nom.</td>
<td>nominative</td>
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<td>acc.</td>
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<td>gen.</td>
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<td>dat.</td>
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<td>sing.</td>
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<td>pl.</td>
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<td>masc.</td>
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<td>fem.</td>
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<tr>
<td>B</td>
<td>Bavarian</td>
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<tr>
<td>CG</td>
<td>Central German</td>
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<tr>
<td>BCG</td>
<td>East Central German</td>
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<td>Gmc.</td>
<td>Germanic</td>
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<td>HG</td>
<td>High German</td>
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<td>IE</td>
<td>IndoEuropean</td>
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<td>LG</td>
<td>Low German</td>
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<tr>
<td>Lux.</td>
<td>Luxemburgisch</td>
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<tr>
<td>ME</td>
<td>Middle English</td>
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<td>MHG</td>
<td>Middle High German</td>
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<td>MLG</td>
<td>Middle Low German</td>
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<td>NHG</td>
<td>New High German</td>
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<tr>
<td>OE</td>
<td>Old English</td>
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<tr>
<td>RP</td>
<td>Received Pronunciation</td>
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<tr>
<td>UG</td>
<td>Upper German</td>
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<tr>
<td>ahd.</td>
<td>althochdeutsch</td>
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<tr>
<td>dt.</td>
<td>deutsch</td>
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<tr>
<td>mhd.</td>
<td>mittelhochdeutsch</td>
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<tr>
<td>nhd.</td>
<td>neuhochdeutsch</td>
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Abbreviations for reference works are to be found after the first occurrence in the work itself, e.g. "Wörterbuch der Deutschen Aussprache, (WDA)."

[ ] phonetic transcription

/ / phonemic transcription, or underlying representation

( ) linguistic variable

* reconstructed or hypothetical form

a the letter 'a'

The phonetic symbols used in this work are those of the International Phonetic Alphabet, except for the following:

\[\begin{align*}
\hat{b} &= \text{IPA}[v] \\
\hat{d} &= [d] \\
\hat{g} &= [g] \\
\hat{s} &= [s] \\
\hat{u} &= [u] \\
\hat{e} &= [e] \\
\hat{e} &= [ɛ] \\
\hat{e} &= [\varepsilon] \\
\hat{i} &= [i] \\
\hat{o} &= [o]
\end{align*}\]

Other phonetic symbols are explained in the text.

For typographical reasons \(\beta\) is used for NHG \(\beta\) e.g. da\(\hat{a}\) for da\(\beta\).
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Abstract
1. INTRODUCTION

Historical German phonology is a well-researched field of study and any fresh attempt to deal with it must be fully justified. Although the study of language has advanced with great strides since the first descriptions of historical German phonology were written, the handbooks have not changed at the same rate. As examples of such handbooks we will take Hermann Paul's Deutsche Grammatik, reflecting Paul's long career, and Richard von Kienle's Historische Laut- und Formenlehre des Deutschen. The former sets out his historical phonology in the following fashion: Allgemeines über die Vokale, Die einzelnen der betonten Silbe, Vokale der unbetonten Silbe, Vokalwechsel, Allgemeines über die Konsonanten, Die einzelnen Geräuschaute, Die einzelnen Sonorlaute, Konsonantenwechsel. Von Kienle sets his handbook out as follows: Die Entwicklung starktoniger Vokale bis zur nhd. Zeit: Die Dipthongierung der mhd. Langen i, u, ü, Die Monophthongierung der alten Dipthonge ie, uo, üe, Rundung und Entrundung, Änderungen der Vokalquantität, Änderungen der Vokalqualität, Der hochdeutsche Konsonantismus nach Einzellauten dargestellt, Die Dentale, Die Labiale, Die Gutturale und der

1) 1916, reprinted 1959.
2) 1960.
Hauchlaut h, Die Halbvokale j und w, Die Liquiden r und l, Die Nasale. There are a few differences but, in the main, the plans and interpretations of both these handbooks are similar. Von Kienle's book does not provide any more insight or information than Paul's, although it was written almost half a century later, during which time-span, however, the study of language had advanced a great deal. For one thing the concept of the phoneme had been proposed and widely accepted, albeit in different interpretations. The distinction between synchronic and diachronic and between other Saussurian terms had also become firmly established. Linguistics had gained the status of an academic discipline in its own right. In historical phonology the Prague school suggested that the atomism of Neogrammarians, such as Paul, could be overcome by regarding sound changes as changes in phonological systems: "phonetic changes must be analyzed in relation to the phonemic system which undergoes these mutations". This approach was adopted in Europe and applied to aspects of German as well to other languages. It is of particular interest that most of the phonemic articles dealing with the history of German were written in America in the late 1930's and after. The link

3) The following represent some of the different interpretations of the phoneme:
   Swadesh 1934; Twaddell 1936; Trubetzkoy 1939; Pike 1947 a, Jones 1962.

4) Jakobson 1962, 2.

5) For details, see the bibliography by Juillard 1953.
between the European phonological tradition of the Prague school and American structuralist phonemics is Herbert Penzl who, as an Austrian by birth, was awarded his doctorate by the university of Vienna and arrived in America in 1936, where he has continued his academic career. A glance at a detailed bibliography of works on German phonology shows that a large number of articles exist, which deal with problems of historical German phonology from the phonemic point of view. However, most of the articles which propose phonemic solutions to problems of historical German phonology deal only with sub-systems, e.g. Die mhd. Sibilanten und ihre Weiterentwicklung, or with OHG, e.g. The development of Germanic ai and au in OHG. The valuable insights in these articles have remained scattered and have not been worked into the traditional handbooks. Recently an attempt has been made by Penzl to produce a larger picture of OHG using the phonemic approach, but nothing has yet been attempted for the period from MHG to NHG. The phoneme and the phonemic level have been rejected in the last decade by generative linguists. However, despite such attacks "the dragon "phoneme" is not going to be slain that easily". Whatever the

6) Details from Sebeok (ed.) 1972, 9, 1847.
8) Penzl 1968a.
outcome of the debate surrounding the phoneme may be, there still remains the task of writing a phonemic history of German. In section two of this work the impact of generative phonology on historical phonological theory will be discussed, and the model adopted in this work will be set out. In some cases it was found necessary to revise the traditional phonemic model of sound change, particularly to allow for the grammatical conditioning of sound change. Sound changes have been explained in various ways and it is our belief that this is possible in many cases. Section three concerns itself with the nature and delimitation of explanation in historical phonology.

A phonemic approach to historical phonology does not merely mean the manipulation of phonemic symbols on paper. It includes not only an inventory of phonemes and how their number changes, but also changes in their phonetic realization, allophones, distribution and incidence, i.e. the set of words which contains them. Changes in incidence have traditionally been handled as exceptions to regular sound correspondences. In dealing with this part of sound change it was found necessary to examine the provenance and date of many words which were either exceptions to regular changes, or else which formed small irregular changes, i.e. the representation of MHG \( \ddot{a} \) by long [o:] in NHG. Intensive examination of

12) This is emphasised by Keller 1968, 107.

13) The macron \( ^\text{\text{-}} \) will be used to designate vowel length in MHG examples instead of the usual ^ for typographical reasons.
individual words had to be undertaken in order to handle this properly. Philological spade work had to back up historical phonemics. Variation in Early NHG also demanded such work. The handbooks present a clear, perhaps too clear, equation of A becoming B, but in this study it was found that, in many cases, there was considerable variation and uncertainty in some words. Exceptions were often discovered to be selections from among variant forms.

The span of time involved in this study is immense: from MHG to NHG. The exact date and nature of MHG is deliberately kept unspecified. A detailed phonemic analysis of MHG, taking into account all kinds of manuscripts from different regions, would be a major task in itself. It was assumed, rightly or wrongly, that for the task of highlighting the overall development from MHG to NHG, normalized MHG as it is presented in the handbooks would suffice. Since the pronunciation of MHG is only obtainable by indirect evidence, a section was necessary which deals specifically with the reconstruction of the pronunciation of languages which are no longer spoken. The principles for reconstruction of this kind are set out in chapter four. As each sound is dealt with, the MHG pronunciation reconstructed for the sound, or sounds involved in the change, is presented.

During the history of a language the prestige model may change.  

14) Trim 1959, 25. (The traditional dates for MHG and Early MHG will be used in this work, e.g. MHG, 1150-1350, Early MHG, 1350-1600. For a slightly different division, see Moser 1957, 100.)
In MHG that model was the literary language of courtly culture, which was, to a certain extent, standardized. In Early NHG this model had gone out of favour and several regional models were struggling for supremacy. Eventually the written language of MeiBen seems to have been accepted as the prestige model, only to be replaced in the nineteenth century by the North German model centred on Prussia. A full history of German would deal with the selection of these different models in detail. Although there has been a change of model, not once but several times in the history of German, the relationship between MHG and NHG is not so discontinuous that they cannot be easily compared and regular correspondances set up between them. MHG will be taken as a reference point rather than as a direct ancestor of NHG.

Early NHG presents an often bewildering array of forms taken from texts from different styles and regions. V. Moser's Frühneuhoch-deutsche Grammatik was used as a guide through all these forms. No attempt made to base the analysis on one particular text or region, nor to examine direct manuscript evidence. This course of action was felt to be justified since the goal of the study was the large-scale development from MHG to NHG. Direct comments on the language and its forms were available in Muller's interesting collection of articles. Also the comments of the more

15) Eichler, Bergmann 1967.
16) 1929, 1951.
important grammarians, such as Schottel, Gottsched and Adelung, were taken into account. To some extent even NHG presented problems since one is not dealing with a completely uniform language but one which has stylistic and regional variations. However in NHG there is direct access to colloquial speech and regional dialects, as well as to the formal standard.

A minor problem was the choice of a framework for presenting the changes. The 'sound-by-sound' approach of Paul was not considered satisfactory, since sounds frequently develop in groups and not individually. A study of those works which have been written about the history of various languages from a phonemic point of view was not very fruitful. These works showed a similar lack of uniformity to the traditional handbooks. The earliest of them by Jakobson, describes the changes in the development of Russian in very general terms, for example:

"Changement protorusse de je-initial en o- et faits similaires des autres langues slaves, Alterations dialectales russes du vocalisme atone." He does not describe the changes according to his typology of phonological change which, although not published until later, he had probably worked out by this time. Other works which follow, written either by linguists in the Prague school or in the American structuralist tradition, use a phonemic

18) 1929, also reprinted in Jakobson 1962.
19) 1962, 52 and 68.
20) Jakobson 1931.
typology of sound change as the main basis of presenting their historical phonology. They use either general phonetic terms, refer to classes of sounds, or individual sounds or sound changes. Haudricourt and Juilland use the general headings: "La disparition de la quantité latine et ses conséquences en galloroman, Les palatalisations romanes et galloromanes." Llorach has such headings as: 'Diptongación y otras fenómenos, Serie de sonores con varación.' Fairbanks is more specific with subheadings such as: "The phoneme /f/, loss of /h/, Nasal vowels." They never discuss the ways in which they have classified the sound changes. One reason for not using a phonemic typology of sound changes is that any typology, whether phonemic or any other sort, tends to be simply classificatory and not to capture the dynamic processes of sound change. However, a more important reason for not using a phonemic typology to present sound changes is that changes which are part of one phonological process may have to be separated and dealt with in completely different sections, because they each have a different effect on the phonemic system. The development of the nasals in German presents rather a striking illustration of this. In the development from MHG to NHG there is a general process whereby oral stops are assimilated to preceding nasals. MHG medial ng, [ŋ], as in singen, became assimilated to [ŋŋ] which later

21) Haudricourt and Juilland 1949.
22) Alorcas Llorach 1954.
became shortened to [ŋ]. MHG /mb/, kumber, also became assimilated, to [mm], which was subsequently shortened to [m]. In the case of the shortening of [mm] the resultant sound merged with an already existant phoneme /m/: MHG kumber, swimmen, NHG Kummer, schwimmen. 

MHG [ŋg] however when it had undergone assimilation to [ŋŋ] and subsequent shortening to [ŋ], did not merge with any already existing phoneme, but was a new phoneme /ŋ/. The first change, MHG /mb/ to /m/, is a change in the distribution of /b/—it no longer occurs after /m/, whereas the change of MHG /ng/ to /ŋ/ is a phonemic split, which adds a new phoneme to the phonological system. 

Added to this is the fact that using an abstract framework for classifying changes makes it difficult for others to consult the work. Jakobson's work on Russian, and Weinrich's on the Romance languages can certainly be criticized on this ground. 

It was decided that although individual changes would be classified according to the phonemic change involved, e.g. the emergence of the new phoneme /ŋ/, the merger of MHG /s/ and /z/, the conditioned merger of MHG /s/ and /ʃ/, the main classification of changes in the development from MHG to NHG would be in phonetic terms, e.g. the sibilants, the stops, the short vowel system. This has the great advantage of making the work easy to be consulted and yet keeping the innovation of dealing with changes in phonemic terms. 

The general format is in fact very similar to that of traditional handbooks, but within the sections the treatment of sound changes is quite different. This question is really one of formalization.

rather than one of substance.

This work is the first of its kind to attempt an overall coverage of the development from MHG to NHG in detail from a phonemic point of view. Fleischer deals with this period, but not in great detail.\textsuperscript{25} The goals of this work are modest: to apply the concept of the phoneme to the section of the history of German from MHG to NHG, and to examine in detail the problems thus raised. This entailed a detailed examination of exceptions and an attempt to find satisfactory explanations for them.

\textsuperscript{25} Fleischer 1966.
2. SOUND CHANGE

2.1 COMPETENCE AND PERFORMANCE

Most of the traditional theories of sound change have recently been labelled, pejoratively it seems, performance theories.¹ Under this heading can be subsumed both traditional neogrammarian and structuralist phonemic theories of sound change. In performance theories sound change is seen to be due to variation in the articulation of a sound which shifts in one direction or another. Various analogies have been used to describe this: for example, that the speakers fail to hit the target,² or that a log is gradually being sawn until it is eventually sawn through. A crucial question, which was largely left unanswered by traditional linguists, was: when does this 'inaccuracy' in performance lead to a change in the language system? Structuralists have, however, tried to answer this. Since these variations (or inaccuracies, call them what one will,) were largely gradual and not perceived by the speakers, it was assumed that sound change was gradual and unconscious. The Neogrammarians seem to have generally assumed that sound change could only be seen by its effects and that one could not see sound change in action.³ This view was adopted by Bloomfield

¹) Kiparsky 1970, 304f.
²) Paul 1920, 54f.
³) Paul ibid., 55f.
and Hockett, but with one important addition: the distinction between allophonic and phonemic sound change. For Bloomfield phonetic change (variation in performance) was sub-phonemic, unconscious and gradual, whereas sound change proper occurred when the gradual accumulative effect of phonetic change led to change in the phonemic system. This is sudden and may proceed by leaps. Bloomfield does not seem to clearly identify this distinction of phonetic change and sound change with the distinction conscious versus unconscious change. He says that "these non-distinctive sub-phonemic variants are subject to linguistic borrowing (imitation) and to analogic change (systematization)". However the example he cites is one of analogy, which does not tell us whether other non-morphologically determined sound changes are consciously perceived, but he does concede that this is perhaps possible when speakers are in contact with speakers of another dialect. How does Bloomfield imagine the change from phonetic change to sound change proper, phonemic change? When dealing with the merger of short a and o in some varieties of American English, he simply says that they have fallen together "and we say, accordingly, that a sound-change has taken place". The sound change can only be seen by its effect but the step from the stage when the two phonemes contrasted to when they no longer contrasted is presumably a

4) Bloomfield 1935, 364f.
5) ibid., 365.
6) ibid., 369.
7) ibid., 367.
sudden one. On the other hand a shift of the type [o:] to [u:] and [e:] to [i:] is seen as proceeding gradually through a stage where there were both higher and lower variants of both vowels. Gradually the lower variants go out of use and sound change is complete. Another way in which phonetic changes may become phonemic changes is by a change in the conditioning factors which brought about the phonetic change. These may be changed radically or even lost. The first and third way in which a phonetic change affects the phonemic pattern of the language do not seem to have taken place gradually and yet Bloomfield separates sound change from phonetic replacement, the latter being seen in dissimilation, where one phoneme is replaced by another without any gradual phonetic development from one to the other. For Bloomfield, phonetic change is gradual and phonetic replacement is abrupt. Later structuralists, like Hockett, have explicitly stated that phonemic restructuring is sudden, whereas "sound change itself is constant and slow. A phonemic restructuring, on the other hand, must be, in a sense, absolutely sudden". The diffusion of a phonemic change, however, is gradual. This of course had been said long before, most explicitly by Jacobson: "Wir sprechen von Mutation, um den sprunghaften Charakter der phonologischen Veränderungen hervorzuheben". As an example he

8) ibid., 365.
9) ibid., 377.
10) ibid., 390.
12) Jakobson 1931, 249.
cites the merger of Russian unstressed a and o where there may be
different phonetic intermediate stages, but phonemically there
are only two stages: when the two vowels are in contrast and
when they have merged.

Generative grammarians have been quite insistent in rejecting the
idea that sound change is gradual and maintaining that it is
always abrupt.13 Most of their argumentation involves finding
examples of sound changes which could not possibly have occurred
gradually, but only by phonetic leaps. Another of the reasons why
they reject sound change as being gradual is that they reject
sound change as such. They prefer to speak of grammar change:
either a rule has been added to the grammar of a speaker or it
has not.14 There can be no intermediate stages. For them,
theories which limit linguistic change to performance variation
are to be rejected in favour of their theory that linguistic
change is a change in the competence of the speaker, his internal-
ized grammar. Although they believe that linguistic change in the
shape of grammar change is sudden, they share Hockett's view that
the spread of a change through a speech community is gradual.15

Those linguists, myself included, who still believe that sound
change may come about gradually are faced with the difficulty of
accounting for sudden changes like the much quoted Romanian 'leap'

from $k$ to $p$, or the loss of initial $k$ in English, knowledge, whereas in acknowledge it is retained. In fact these are not difficult to deal with. They and the other examples of sudden sound changes (excluding dissimilation and similar cases), are all consonant changes. Suddenness may be characteristic of consonants, whereas gradualness is more characteristic of vowels and diphthongs.  

2.2. PHONETIC AND PHONEMIC SOUND CHANGE

There seems to be no real reason to reject the fact that sounds, particularly vowels, may be subject to gradual change. A more crucial question is: when do these changes affect the phonological system of a language and how? Jakobson made a distinction between extraphonological change, which simply increases the number and type of combinatory variants, and phonological mutation, which affects the phonological system. According to Jakobson this is due to any of the following processes:

1. merging a phonological opposition,
2. introducing a new phonological opposition,
3. changing a phonological opposition from a correlation to a disjunction, or a disjunction to a correlation.

As soon as a sound change affects the phonological system in these ways, it has passed a crucial stage and has become a phonological mutation. Several years later Hill made a similar distinction between phonetic changes "which involve no shift in the phonemic pattern" and phonemic changes which do. This distinction corresponds to Jakobson's extraphonological and phonological change respectively but Hill draws his dividing line between them at a different place. For Jakobson, extraphonological change, phonetic change, plays only a minor role, whereas for Hill, changes in the relationships between phonemes "which leave the phonemes as far apart as at the start of the change", (Jakobson's rephonologisation)

17) Jakobson 1931, 249-258.
are phonetic and not phonemic changes. Hill, in fact, only recognizes two types of phonemic change, "the falling together of two phonemes", merger, and "the splitting of a phoneme" because of the loss of a sound which caused a combinatorial change".19 Hockett has built on this distinction, and he makes a similar division. Sound change proceeds gradually but may only affect the phonemic system in two ways: "two maxima drift closer together and finally coalesce", or "a single maximum splits into two, which then drift apart".20 This view is repeated in a later work.21 Earlier in 1958, when Hockett was discussing various types of historical change, he defined phonemic change as "any change in the repertory of phonemes or in arrangements in which they can occur" which seems to cover wider ground than just the merger and split of phonemes.22 Since, however, Hockett has reaffirmed in detail his view that sound change only becomes important when two phonemes merge, or two allophones split, his comments on p. 380 must be interpreted in this narrow way. However, as was pointed out, this limits historical phonology a great deal: "The full body of historical phonology with its phonetic flesh and blood is thus reduced to a rattling skeleton of formal units".23 Circular shifts, where the phonetic realization of the units change but not their number, a very

19) Hill 1936, 18, (Joos 1957, 82).
20) Hockett 1958, 446.
common type of sound change, would not therefore be called phonemic change. This approach, which seems to have its origin in Hill, is followed by Lehmann who regards merger and split as the only two types of phonemic change. Phonetic change, for him, involves not only changes in positional allophones but "any modification in sounds, whether or not they lead to changes in the phonological system".  

The problem seems to be: 'What is meant by a change in the phonemic system of a language?' Jakobson dealt with shifts of sounds involving no change in the number of units by saying that the type of opposition had changed: "die Umbildung eines phonologischen Unterschiedes in einen andersartigen phonologischen Unterschied, der sich in einer anderen Beziehung zum phonologischen System befindet als der erste". He recognizes three types of such changes:

1. the change from a correlation to a disjunction,
2. the change from a disjunction to a correlation, and
3. the change from one type of correlation to another.

Later scholars labelled this change 'phonemic shift', although they dispensed with different types of phonological opposition. Penzl broadens the concept of phonemic shift by saying that it "consists of the change of a phoneme of one type to a phoneme of

25) Jakobson 1931, 255.
another sound-type".26 The examples he gives are of single sounds changing, Germanic b to d, and Latin ù to French [y:]. Moulton keeps phonemic shift as a phonemic sound change "which neither adds to nor subtracts from the phonemic inventory, but which changes the system of distinctive features".27 There is thus a division among phonemicists as to whether phonemic shifts are, in fact, phonemic sound changes in the strict sense of the term.

Another type of change which causes difficulties is conditioned merger, also known as partial merger,28 split with merger,29 and conditioned merger with primary split.30 In NHG, MHG/b/ and /w/ have merged medially after /l/ and /r/ in /bf/. MHG selbe : gelwe, sterben : varwe; NHG selbe, gelbe, sterben, Farbe. It seems to be generally agreed that this type of change affects only the distribution of phonemes and not the phonemic inventory, Jakobson included changes like this in his phonological mutations as changes in phoneme clusters, thus in our example the clusters /lw/ and /rw/ would have been lost from the phonemic system. Neither Hill nor Hockett mention this type of change. Probably they would not regard it as being phonemic, since it only affects the distribution of the phonemes.

The distinction between phonetic and phonemic sound change as it stands, and as it has hitherto been interpreted, is too simplistic.

26) Penzl 1957, 194.
28) Penzl 1957, 196.
29) Moulton 1967, 1397f.
30) Hoenigswald 1960, 91f.
We have seen that whereas some linguists would include shifts as phonemic sound changes others would not. Similarly some linguists seem to regard changes in the distribution of phonemes as phonemic sound changes, although there seems to be no compelling reason to do so, since they do not affect the phonemic inventory. Penzl includes even allophonic variation as a phonemic change and excludes only changes which "affect only the shape of certain morphemes". In a later work he even goes as far as to reject Jakobson's distinction between extraphonological (phonetic) change and phonological (phonemic) change: "Jedes historische Ereignis, jeder Lautwandel, wenn er zu erkennen ist, ist Gegenstand der historischen Lautlehre. Auch deshalb verwende ich lieber die Bezeichnung "Lautwandel" als "Phonemwandel"".

Instead of the dichotomy between phonetic and phonemic sound change, a more finely graded scale is needed, which is suggested here. This scale is based on the effects that a particular sound change has on the phonological system, which is taken to include the phonetic realization of the combinatory variants, the distinctive features, their distribution and also their incidence, that is, the class of words in which they occur. The most obvious way in which a sound change may affect the phonological system is by changing the phonemic inventory, that is by either

32) Penzl 1971, 23.
increasing it or decreasing it. This is usually brought about by merger and split. Secondly, there may be a change in the distribution of phonemes. Voiced obstruents no longer occurred in word final position in MHG. This type of change is brought about chiefly by conditioned merger, in this case the merger of voiced and voiceless obstruents in word final position. Thirdly there may be a change in the incidence of phonemes, usually in a small list of words. This can usually be determined historically, or geographically by dialect studies. These three types of change just listed affect the number, distribution and incidence of phonemes in the phonological system. The remaining two types of change affect the phonetic realization of the phonemes, but not their number or distribution. A change in the distinctive features of the phonological system may affect the whole system, e.g. in the first sound shift the distinctive feature of voice was replaced by the feature of occlusion. Secondly the allophones of the phoneme may be affected. New allophones may arise, e.g. the palatal [c] in NHG, or old ones may disappear.

In our study of the historical phonology of German we shall be concerned with all these aspects of sound change.

34) Fourquet 1954, 12-14; Mossé 1956, 58-61.
2.3, RESTRUCTURING AND PHONEMIC CHANGE

In recent years, phonemic approach has been criticized on several grounds, some concerning historical linguistics and some concerning the theoretical status of the phoneme. We will restrict ourselves to criticisms on historical linguistic grounds. For the generative linguist, linguistic change is not sound change but grammar change. The units with which he works are systematic phonemes which form underlying or phonological representations. Phonological rules then convert these underlying phonological representations into a systematic phonetic or surface representation. Linguistic change comes about when a phonological rule is added to the grammar of the native speaker, to his competence. This rule addition will, of course, effect a change in his performance, but the origin of the change is to be sought in the speaker's competence and not first in his performance. Thus in Germanic all the underlying short and long vowels, a, o, u were realized as short and long a, o, u in surface representation. When the umlaut rule was added to the grammar of OHG the surface representation of short a, o, u before i, i, j in the following syllables were e, e and u.  

35) For a critique of the phoneme, see: Halle 1959; Chomsky 1964; Chomsky and Halle 1965.


37) King formalizes the rule as follows, 1969, 94:

\[
\begin{array}{c}
\left[ \begin{array}{c}
\vee \\
\langle -\text{long} \rangle
\end{array} \right] \rightarrow \left[ \begin{array}{c}
\langle -\text{back} \rangle \\
\langle -\text{low} \rangle
\end{array} \right] / \text{C} \end{array}
\]

He writes the long vowels produced by this rule, e, e, u.
Here the phonemicist would say that Germanic short and long e, o, u developed the allophones e, o, u before i, i, i of the following syllable. Both theories are adequate in describing what has happened, one in term of rules, the other in terms of allophones. Indeed all King's examples of rule addition can be described in phonemic terms, as phonemic shifts, phonetic change in allophones, and phonemic merger. However, he maintains that the latter change is better treated as grammar simplification. The difference between the two theories seems mainly one of terminology. The same thing can be described by both theories, but using different terms.

The main point where the theories are said to be different is with regard to when the grammar of a language is restructured or changed in any significant way. Taking umlaut as an example, the crucial question for the historical linguist is: When do the umlaut vowels become phonemes, or underlying vowels, instead of being merely variants or just occurring in surface representations? Opinions have varied on this but it is generally agreed that at least by MHG the umlaut vowels had become phonemes, or appeared in underlying representations. Phonemicists generally assumed that this happened when the conditioning factors, e.g. i, i, j began to disappear. The earliest stage at which this happened, was when j disappeared before the ninth century. For the

38) King 1969, 39ff.
generative grammarian, however, all that happens then is that a rule of \( \text{-} \)-deletion is added to the grammar. There is no need to change the underlying representations. Later when the unstressed vowels merged in schwa, another rule, vowel reduction, was added to the grammar.\(^{40}\) For the phonemicist, the falling together of the unstressed vowels phonemicizes the umlaut allophones. The generative approach presented by King assumes restructuring of the grammar (changes in the underlying forms) at a later date than the phonemicist. This only happens when the vowel reduction and \( \text{-} \)-deletion rules are lost from the grammar.

For MHG, it would be possible to have two grammars to deal with umlaut, one would be basically the OHG grammar plus the two rules of \( \text{-} \)-deletion and vowel reduction, and the other would allow umlaut vowels in underlying representations where the forms did not alternate with forms without umlaut, and dispense with the \( \text{-} \)-deletion and vowel reduction rules. It is assumed that the second grammar is the one that characterizes MHG. Grammar 1 is typical of adults, in that the innovations are rule additions, whereas Grammar 2 is typical of the reconstruction of a simpler grammar to account for the same set of data by the children of another generation. King assumes that the two theories, phonemics and generative phonology, accept that the restructuring of the grammar took place at different times.\(^{41}\)

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40) King 1969, 95 and 99.

41) King ibid., 95.
In his review of King, Robinson says that if Kiparsky's strong alternation is accepted, then restructuring can be assumed to have occurred before the ninth century, at least for the fem. stems like OHG suntia, even in a generative account of umlaut. If Kiparsky's strong alternation condition, or Vennemann's strong naturalness condition, is accepted, then even in a generative account some restructuring will have taken place when is lost in the ninth century in surface forms. This is, in fact, almost the same time that phonemicists assumed the first restructuring to have taken place! The two theories, even though, according to King, they are very different, seem much closer together than was previously thought - at least in the question of the data of restructuring in the case of umlaut vowels. Acceptance of the strong alternation condition brings the date of the start of restructuring set up by both theories nearer together. The discrepancy between the two theories in this respect is seen to result from a choice of competing theories within the generative framework. However, turning aside from the date of restructuring, this change represents a phonemic split. Most examples of restructuring mentioned by generative grammarians can also be described in terms of phonemic split or merger. This is not surprising since the crucial fact for both approaches is that restructuring or phonemic change brings about a significant change in the grammar of the language concerned.

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43) Kiparsky 1968, 8-25.
45) Chomsky and Halle 1968, 281.
2.4. GRAMMATICAL CONDITIONING OF SOUND CHANGE

Another way in which phonemic theories of sound change are found to be deficient is that they are supposed to limit sound change to phonetic environments, and not to make any use of grammatical information in the formulation of sound changes. This is a little more difficult to answer since not all phonemicists take the same line. Most phonemicists wanted to keep phonology separate from grammar and in historical studies do not mention grammatically conditioned sound changes. Bloomfield states this view quite explicitly: "The limitations of these conditioned sound-changes are, of course, purely phonetic: phonetic change is independent of non-phonetic factors". Any change which seems to require grammatical information like Bloomfield's example of *Carter*, with a short vowel, and *cart + er*, e.g. "one who carts something", with a long vowel, is put down to analogy with the long of the simple form *cart*. Pike did not share this opinion that phonology could make no use of grammatical information, but he did not apply this to sound changes. One reason for the neglect of grammatical information is that in many cases, such as the one mentioned by Bloomfield, they can be handled by analogy. Also it appears that there are very few examples. Postal, for all his furore against taxonomic sound change, gives

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48) Bloomfield 1935, 353.
49) Pike 1947b.
only one example of a grammatically conditioned sound change. King cites the example of the loss of final -e in the history of Yiddish, which took place everywhere except in the case of adjectives in attributive position (and in a few other cases). He need not have looked as far as Yiddish for even in German the loss of retention of final unstressed -e depends on morphological conditioning factors. This was recognized by Wilmanns as long ago as 1911: "Besonders charakteristisch ist das Bestreben, die Flexionen, insofern sie Unterschiede der Person, des Numerus, Tempus, Modus, Kasus bezeichnen, zu schützen, und zwar zeigt man sich dabei weniger besorgt um die Erhaltung des unbetonten -e als um die Erhaltung einer vernehmbaren Flexion". Kiparsky also gives examples of grammatically conditioned sound changes.

In synchronic studies the neglect of grammatical information in phonology led to the setting up of phonemes with zero allophones, or juncture phonemes which could be realized as zero. In historical studies sound changes, which are grammatically conditioned, have been handled by dealing with how the sound change has affected each part of speech separately.
This is not such a stumbling block as King and Postal would have us believe, since it is quite easy to follow Pike and allow grammatical information in phonemic analysis, and consequently then in historical phonology. This will be the view adopted here. By grammatical information is meant word and morpheme boundaries and categorial information - whether a sound occurs in a noun or verb, or in the past or present.
2.5. RULE REORDERING

A much more serious example where it is claimed that change by rules is to be preferred over change by phonemes is where rules of the grammar are said to be reordered. Various examples of this are cited and we will take the example concerning the German velar nasal. In MHG it is assumed that the surface form *dine* was derived from the underlying form /ding/ by a rule which devoiced obstruents in word final position. This did not affect the pl. form *dinge* which is assumed to have been pronounced [dïŋge]. The NHG forms are Ding [diŋ] and Dinge [diŋe] with the [ŋ] after the velar nasal lost. This has come about, it is argued, by the addition of a *g*-deletion rule. Since the final devoicing rule was added at the end of OHG and the *g*-deletion rule at the end of MHG, they should apply in that order in NHG. However, if we apply the rules in that order we get the following derivation:

\[
\begin{align*}
\text{underlying forms} & \quad /\text{ding}/ \quad /\text{dïŋge}/ \\
\text{devoicing rule} & \quad [\text{diŋ}] \quad [\text{dïŋge}] \\
\text{*g*-deletion rule} & \quad [\text{diŋ}] \quad [\text{dïŋe}] 
\end{align*}
\]

The resultant forms [diŋ] and [dïŋe] are, of course, not the standard NHG forms. They do, however, occur in North German colloquial speech. If we reverse the order of the rules then we get the following derivation:

\[
\begin{align*}
\text{underlying forms} & \quad /\text{ding}/ \quad /\text{dïŋge}/ \\
\text{*g*-deletion rule} & \quad [\text{diŋ}] \quad [\text{dïŋe}] \\
\text{devoicing rule (not applicable to final nasals)} & \quad [\text{dzi}] \quad [\text{dïŋe}] 
\end{align*}
\]
Thus, placing the \( \mathbb{g} \)-deletion rule before the devoicing rule does give us the correct forms for standard NHG.\(^{56}\) This seems plausible, given a framework of generative rules, but how was it dealt with before phonological rules were thought of? As an answer let us quote Wright:\(^{57}\) "In final stressed syllables \( \mathbb{g} \) became \( \mathbf{gk} \) in MEG., as MEG \textit{dinc}, \textit{junc}, \textit{lanz}, beside gen. \textit{dinges}, \textit{junges}, \textit{langes}, pret. sing. \textit{sanze} beside pret. pl. \textit{sangen}. This final \( \mathbf{gk} \) sound has been retained in NHG in the dialects — often also amongst educated people — of a great part of North and North Middle Germany. On the other hand the intervocalic form \( \mathbf{g} \) has been generalized in the recognized standard language and in the dialects of South and South Middle Germany". An alternation \( \mathbf{gk} - \mathbb{g} \) has been levelled out by analogy in favour of \( \mathbb{g} \).

The example given by generative grammarians of rule-reordering can easily be handled by analogy. Interestingly enough some generative linguists are departing from rule-reordering and giving more weight to analogy. For instance Kiparsky has advocated a constraint on phonological change of paradigm coherence which says that "allomorphy within a paradigm tends to be minimized".\(^{58}\) Vennemann has emphasized what he calls Humboldt's universal — one form for one meaning.\(^{59}\) Both these

\(^{56}\) Vennemann 1970, 79; Anttilla 1972, 120f.; Kiparsky 1971, 599.

\(^{57}\) Wright 1907, 128.

\(^{58}\) Kiparsky 1971, 698f.

\(^{59}\) Vennemann 1974, 138: "The principle of 'one meaning, one form' (i.e. what I call Humboldt's Universal)."
principles are aimed at saying that if two phonologically differing forms are created by a sound change, the difference will tend to level out.

Having considered various criticisms of phonemic historical phonology by generative grammarians, we have come to the conclusion that at the moment there seems no compelling reason for adopting a framework which describes phonological change solely in terms of rules. In this study we will adopt a phonemic framework with the condition that grammatical information can be used to describe conditioned sound changes. Where generative grammarians have sought to give answers to individual changes, these will be reviewed. It is hoped that the phonological changes in this study will be easily convertible into rule form.
2.6. SYNCHRONIC VARIATION AND SOUND CHANGE

Regardless of whether linguistic change is described in terms of rules or phonemes, there is a more fundamental way in which both approaches have been found to be deficient. Both seem to regard language as being homogeneous. Chomsky is quite explicit on this point: "Linguistic theory is concerned with an ideal speaker-hearer, in a completely homogeneous speech-community...". Most phonemicists also tried to find a homogeneous variety of language to describe. The most explicit example of this is Bloch's attempt to define the idiolect as "The totality of possible utterances of one speaker at one time in using language to interact with one other speaker...". He excludes the possibility of a speaker using a different style. This seems to have been accepted in principle by most structuralists except for Fries and Pike, who, in a famous article, set out "to demonstrate the validity of the assumption that two or more phonemic systems may coexist in the speech of a monolingual". This was not taken up at the time, but recently the concept of a language or an idiolect being linguistically uniform or homogeneous has come under fire from linguists such as Labov, who quotes the article by Fries and Pike as "a real advance because they did more than set these elements aside as extraneous: they saw that

60) Chomsky 1965, 3.
61) Bloch 1948, 7.
62) Fries and Pike 1949, 29.
there could be a rich variety of systematic relations within such complex mixed systems". Labov attempted to describe the pattern of urban speech. Previously it had been assumed that phonological variation and fluctuation in urban speech was quite random and could not be systematized. However in his study of New York speech, Labov found that this was not so. He discovered that phonological variation could be correlated to differences of style and social class. He introduced the notion of the linguistic variable in his study, that is, a phonological element which showed a phonetic range which "may be easily quantified on a linear scale". The potential phonetic variation of this variable was plotted on a numerical scale and speakers' performance scores were also plotted on this same scale. Two more factors were taken into account to give a full description of the linguistic variable: style and socio-economic class. The performance of speakers from ten socio-economic classes were plotted with the added dimension of their performance in four different contextual styles: careful speech, casual speech, reading style and word-list style. Sometimes he added the style: minimal pairs. Taken together, this resulted in a graph with two axes: the score in producing the linguistic variable by each class on the vertical axis, and horizontal axis showing how they differed from style to style. The classes were reduced to four by merging some of them together: 0-1 represent the Lower Class, 2-5 the working class

64) Labov 1966, 49.
(at some points Labov wants to distinguish between Lower WC, 2-3, and Upper WC, 4-5), 6-8 the lower middle class, and 9 the upper middle class. For example the linguistic variable (r) is given two values, 1 for the consistent use of "a definitely constricted r-like sound," and 0 for consistent use of "an unconstricted glide, or no glide". The values on the graph are expressed in percentages of r's. The percentage of r's is greatest in minimal pairs and word lists for all classes, whereas it is smallest in the casual speech of all classes. The variable shows stylistic variation in all classes. It is also socially differentiated since the higher the class the higher the percentage of r's in every style (an exception to this is with regard to the variable (r) in the two most formal styles, word lists and minimal pairs, where the LMC has a higher score than the UMC). The graphs can be extended to show variation between age groups in each class, or between men and women in each class. Labov starts with the presupposition that language has an inherent variability. The variation of a linguistic variable may only show a variation according to social class or age, but no stylistic variation. In this case the linguistic variable is an indicator of a particular class or age group. This type of variation is not linguistic change but is part of the language community. It is, however, predictable: given the social class,

65) Labov 1966, 50.
one can predict the realization of the linguistic variable. These types of automatic variation seem largely unconscious to the speakers and in most cases are stable, having not changed over the years. Labov does not give any examples of such automatic variation although he admits that "some types of variation are themselves invariant from generation to generation". If changes do happen to these variables, and the values of them in all classes shift in any one direction without any crossing over of classes, then this would be a linguistic change from below, largely unperceived by the speakers themselves. Labov reports that he discovered no such case in New York English. This may rest in the choice of his linguistic variables, since Trudgill, in his study of Norwich speech, found examples of variables without any appreciable stylistic stratification. Stylistic variation does not follow automatically from social variation, but only comes about when speakers become conscious of sociolinguistic variation. Trudgill also found examples of seeming random variation. RP [ou] is realized in Norwich by a wide variety of phonetic variants. Variation, although mostly structured, may sometimes be quite random. This may depend on the amount of phonetic space available to the variable concerned, and its nature. Vowels will tend to have potentially more variability in pronunciation than consonants. Interestingly enough, most of the linguistic variables picked out by Labov and Trudgill are vowels.

68) Trudgill 1974, 96ff.
69) Trudgill 1974, 117.
The only examples of consonants are postvocalic (r), initial (th) and (dh) by Labov, and initial (h), intervocalic and final (t) and (ng) in the ending -ing by Trudgill.

These cases of class indicators, social variation without stylistic variation, are inherent in the linguistic system and are part of the competence of the speech community. They do not constitute a linguistic change although they may be the beginning of one.

In most traditional accounts of linguistic change a distinction is made between the origin of a change and its propagation through a speech community or overageographical area. Labov, on the other hand, does not want to make this distinction but says "the origin of a change is its propagation or acceptance by others". In this way he says that sound change is observable—something that previous linguists said was impossible. However it must be said that what Labov means by "sound change" in progress is what other linguists would call the propagation of a sound change. The great value of his studies lies in the fact that the forces he observes today are probably the same as those which operated in the past. This he calls the uniformitarian hypothesis. Labov sees the progression of a sound change in the following terms: A sociolinguistic indicator of a class or

70) Bloomfield 1935, 362.
72) Labov 1971, 423.
age group becomes differentiated stylistically and becomes a sociolinguistic marker. At this stage the variable may acquire greater scope, phonetic range and become more conscious to the speakers. Then, having become conscious to the speakers, it may be stigmatized or become regarded as a prestige pronunciation. At this stage hypercorrection may step in. Trudgill is explicit on the point that stylistic variation only occurs when variables are consciously perceived: "Stylistic variation takes place in the case of variables which are subject to class differentiation only when social consciousness is directed towards these variables." As an example of a variable with both social and stylistic variation Trudgill cites (ng) in the present participle ending -ing. Its pronunciation varies between 000 for a consistent use of [ŋ] to 100 for a consistent use of [n]. In casual speech the MMC has a score of 028, the LMC 042, the UWC 087, the MWC 095 and the LWC 100. The classes in this style are clearly differentiated by their scores. However in Word List Style (WLS) they are still differentiated in the same order but the scores are much lower, showing a greater use of [ŋ] for all classes: MMC 000, LMC 000, UWC 005, MWC 023, LWC 029. The graph as a whole shows a rise in the use of [ŋ] in all classes from WLS to CS. The working class shows a steep rise in the percentage from reading passage style to formal style: UWC from 015 to 074, MWC from 044, to 088, and LWC from 066 to 098. The middle class

74) Trudgill 1974, 103.
shows only a small rise here but a greater rise from FS to CS: LMC from 015 to 042, MMC from 003 to 028. In this example not only are the classes differentiated, but also each class shows differences according to which style is being used. He examines the reasons why speakers may have become conscious of these variables in greater detail than Labov. For Trudgill, consciousness of stylistic variation results from four factors: 1. the forms may be being obviously stigmatized. This may take varying forms. The pronunciation may be subject to ridicule, discouragement in schools, or perhaps it violates spelling conventions. This would apply to (ng). 2. The forms may be undergoing linguistic change. 3. The forms may be involved in surface, i.e. phonemic, contrasts. He cites the variable (yu), which is involved in contrasts like do : dew, as an example. 4. The pronunciation concerned may vary greatly from the prestige variety, in this case from RP, i.e. the variable (ɔ), with values [u:], [ʊ]. As soon as a variable is consciously perceived by speakers then it may be accepted or rejected by them. A further development of a linguistic marker is that it becomes a stereotype "discussed and remarked by everyone". This seems more a difference in degree

75) Trudgill 1974, 91f. On p. 91 in the last paragraph [n] and [ŋ] should be reversed. As it stands the sentence is contradicted by the results given on the next page.
76) 1974, 103.
77) 1974, 100.
than a particular linguistic difference. For Labov, a sound change will have become complete "only when a group of speakers use a different pattern to communicate with each other".\textsuperscript{79} Most of the sound changes investigated by Labov and Trudgill have been sound changes in progress. Trudgill has two examples of 'almost' complete sound changes where there is only relic pronunciation, mostly in the lower classes. When a sound change has been completed, all classes show the same pronunciation with no stylistic shifting. The variable (\textipa{ir}), as in \textipa{bird}, \textipa{hurt}, \textipa{fern}, has three values: 000 for consistent use of [\textipa{3}]\textsuperscript{7}, 100 for consistent use [\textipa{f}] and 200 for consistent use of [\textipa{a}]. The middle class has 000 and the UWC 003 in all styles whereas only the MWC and LWC have higher values. The highest, however, is only 082 in the FS and CS of the LWC. The variant [\textipa{3}] which is the RP value has almost ousted the other variants in most classes and styles.\textsuperscript{80} For Labov, a completed change may have stylistic variation but it may well have "maximum differentiation between the highest and lowest social groups, as a result of overt social correction".\textsuperscript{81} In another place he elaborates further: "Eventually the completion of the change and the shift of the variable to the status of a constant is accompanied by the loss of whatever social significance the feature possessed".\textsuperscript{82} I

\textsuperscript{79} Labov 1973, 209.
\textsuperscript{80} Trudgill 1974, 112.
\textsuperscript{81} Labov 1971, 475.
\textsuperscript{82} Weinreich, Labov, Herzog 1968, 187.
think that it is not so much the loss of any social significance but, in many cases, the loss of any conscious social significance, which is important. The inherent social variation with no stylistic stratification may well be the result of sound change. Obviously in some cases, a variable may be diffused throughout all styles and social classes, thus becoming a constant. However only time will help us to know if this has indeed happened. Both possibilities have been found. Trudgill, in his study, is more explicit about how to recognise when a linguistic change is going on. If there is an "unusual class differentiation pattern", or, "a reversal of order of classes", or, "overlapping in the social class differentiation diagram", then there is a linguistic change in progress. In these cases the automatic social variation has been disturbed. One variable is extending its range. One can no longer predict which class will be characterized by which variable. The change may not only affect social variation but sex differentiation as well. Trudgill has one example of a change in progress where there is no difference in the range of the variable among the social classes, but only between the men and women of the lower classes. The variable (o) has two values: a rounded [ɔ] and an unrounded [ø]. It shows regular social variation with the MMC having mostly only [ɔ] in all styles. It also has

84) Trudgill ibid., 104.
85) Trudgill ibid., 112.
stylistic variation, chiefly among the working class, whereby the highest percentage of rounded vowels is used in WLS and the lowest in CS. This is also true of the LMC, but the variation is mostly to be seen in the change from FS to CS. This is a similar picture to that of (ng) and other variables which show regular social and stylistic variation. No change seems to be in progress. However, if we examine the value of this variable for men and women separately in each class a different picture presents itself. MC men have a higher score than MC women, i.e. use more unrounded vowels, whereas the opposite happens in the WC. WC women have consistently more unrounded vowels than WC men. Trudgill interprets this as the introduction in Norwich speech by WC men of the rounded vowel [ə], which is the RP form as well as that of the surrounding dialects. 86 The variable (ng) also shows a similar differentiation. In this case the women of all classes show a lower percentage of [n] forms than men. This can be seen most clearly among WC speakers. 87

Another interesting fact that Trudgill discusses is the case of a conditioned merger in some styles but not in others. The variables (er) and (gr) cross over phonetically in the casual style of the Upper Working Class, but speakers from this class still keep the sounds apart in other styles. 88 This seems to be

86) Trudgill ibid., 108f.
87) Trudgill ibid., 93f.
88) Trudgill ibid., 120f.
more frequent than is realized. I have observed myself that speakers, who do not normally distinguish between /\m/ and /\w/ in casual speech, can do so in word list styles. e.g. which : witch. This is presumably an example of a sound change in progress, which will eventually be completed by the merger of the two sounds in all styles.
2.7. VARIATION AND SELECTION

The studies by Labov and Trudgill have shown that language shows inherent variation, and that sound changes can be observed in progress. This is of supreme importance for historical linguistics. It must not merely deal with diachronic correspondences, which show the victorious forms, but also, if possible, the stage at which forms were in competition. To a certain extent linguists were aware of this, although variation was mostly labelled 'dialect borrowing'. Sturtevant is quite explicit that variation did exist in the past: "We have actual record of periods of vacillation between rival phonemes, leading to the complete victory of one or the other". The Hungarian Fonágy also comes to the same conclusion: "Wir sehen, daß der Lautwandel im Kampf von Varianten vor sich geht". In 1959, Trim, reviewing the development of historical linguistics says: "The mechanism of sound laws gives evidence only of regularity and coherence of development. It provides no dynamic". Trim's aim was to try and suggest some ways in which historical linguistics could be made dynamic. He suggests that this could be done by examining sound change at work. This would entail a detailed examination of stylistic, regional and class variation. The dynamic is provided by "the balance of co-existent competing forms". Having examined the variation in language, one can

89) Andersen 1972, 12ff.
90) Sturtevant 1947, 80.
91) Fonágy 1956, 245.
92) Trim 1959, 20.
93) Trim ibid., 24.
then "observe changes and identify the types of selection pressure which have operated".\textsuperscript{94} These suggestions were programmatic, but they were taken up by Samuels, who explicitly uses the terms 'variation' and 'selection' in his framework for historical linguistics.\textsuperscript{95} For Samuels, variation is always at work in language. It may result in assimilative changes on the syntagmatic level, many of which can be put down to ease of articulation. This is true of both vowels and consonants. There may also be variation which is due to sounds being articulated differently in different styles, e.g. relaxed style variants versus formal style variants. This is especially the case with vowels and dipthongs.\textsuperscript{96} According to Samuels, three principle things may happen to these variants produced by the spoken chain. They may be rejected, that is they may never be anything more than idiosyncratic variants, mistakes, and thus be unheeded and unrepeated. Secondly, they may be selected "according to current requirements of the system for the maintenance of equilibrium and of the level of redundancy".\textsuperscript{97} The reasons for the selection of variants, from case to case, and, according to Samuels, are ad hoc. Thirdly, the variants may be so numerous that they force themselves to be selected by the system. This happens mostly with forms from other languages. For Samuels,

\begin{itemize}
\item \textsuperscript{94} Trim ibid., 23.
\item \textsuperscript{95} Samuels 1965, 15f.; 1972 passim. Originally from Whatmough, 1956.
\item \textsuperscript{96} Samuels 1972, 9-27.
\item \textsuperscript{97} Samuels ibid., 140.
\end{itemize}
selection is the prime mechanism by which mechanical change in
the spoken chain and change in the linguistic system, functional
change, are linked together. Neither of these types of change
has priority over the other, but both are equally important. 98
If the studies by Labov and Trudgill are typical, there is no
reason to doubt that the amount of variation that exists in a
language at one time is large and needs complex networks to
describe. The historical linguist, on the other hand, has much
more limited data. A process of selection has already been made
for him, and he must content himself with the evidence available.
However if we examine the period from the Middle Ages to the
seventeenth century and beyond in any European language we can
find ample evidence of variation. 99 First of all there are the
manuscripts and texts of the language itself. These, particularly
for Early NHG, present a superabundance of different forms from
different parts of the country. For this sort of evidence we
will rely largely on secondary literature which has studied and
analyzed these primary sources. 100 With the beginning of the
interest in the study of the national languages of Europe, grammars
and primers were produced in abundance, for foreign as well as
native learners of the language. 101 These two sources often

98) Samuels ibid., 138f.

99) Cf. for variation in grammar: Feudel ed. 1972, especially
pp. 79-166, and Nerius 1962.

100) V. Moser 1929, 1951.

provide evidence of variation, and even evidence of which form is to be preferred over another one. This large amount of variation continued unabated till most languages achieved a written standard at least. The search for a standard in German lasted for a long time, and even today NHG exhibits regional variants in vocabulary, e.g. Sonnabend and Samstag for 'Saturday', in grammar, ich bin gesessen, ich habe gesessen, and of course in pronunciation. The development from MHG to NHG is a fruitful field for the study of variation in the past and the selection of forms for the standard. How much variation and competing forms there are varies from change to change. In many, if not most, cases the historical linguist merely sees the victory of one or more competing forms. Samuels sees variation in the past mostly as conditioned variation, i.e. the variants can be predicted to occur in certain styles or areas. It may also be the case that variation in the past was free and unconditioned but since our records are not sufficiently detailed we may never know the conditioning factors. When there are two variants, whether they are conditioned or not, a usual development is that one will die out. In the sixteenth century in France [wa] and [wa] were used to pronounce the sequence oi. In modern European French [wa] is the only acceptable form, [we] having died out. 102 Sometimes two phonologically different forms of one word, which may or may not be in free variation, may become differentiated semantically. NHG

102) Fonagy 1956, 251.
drucken 'to print' and drücken 'to press' were probably regional variants of one word at some time, but this variation has been rationalized as a difference in meaning. Standard languages do not seem to tolerate variation in forms for a long time. A standard language by definition is uniform and does not tolerate variation. This demand, which is implicit in the formation of a standard language, for decisions on whether a pronunciation or word form is to be accepted, is of great help to the historical linguist in enabling him to see how forms were selected from among variants. Prescriptivism in grammar, which has been so often condemned by descriptive linguists, is a great assistance to the historical linguist in showing him what forms or constructions were in variation and how speakers evaluated them.

In this study of part of the history of German, attention will be paid to competing forms, where evidence for them exists. Sound change is not simply a matter of diachronic correspondances, but comprises dynamic changes, which involve variation and selection from among variants.

103) Deutsches Wörterbuch (hereafter abbreviated Dt. Wb.), 2, 1441.
3. EXPLANATION OF SOUND CHANGE

3.1. INTRODUCTORY

Early explanations of sound change were often sought in extralinguistic factors such as the climate, or physiology of the speakers. Thus, the second or High German sound shift in which the initial Germanic voiceless stops became affricates before vowels, e.g. Ꙇ, ꙉ, ꙋ became [pf], [ts], [kx] (the latter only in UG), was viewed by some linguists as being caused by the Alpine climate. Since it was carried through most completely in Southern Germany, Austria and Switzerland, which are mountainous regions, it was assumed that there was a causal relationship between the sound shift and the climate or geography of the region. This view was advanced by serious linguists, but it was soon refuted by Jespersen. He pointed out that the tendency to affrication of voiceless stops was not confined to mountainous regions, but that there was a strong tendency to affricate initial pre-vocalic Ꙇ in the colloquial speech of Copenhagen.¹ Most scholars have been hesitant to explain sound changes in terms of extralinguistic factors, but even in more recent days attempts have been made to do this, notably by Brosnahan, who, building on the work of the geneticist Darlington,

¹ Jespersen 1922, 256f.
sought to show that the distribution of certain sounds, for example \( \theta \) and \( \lambda \), and their changes through time, was due to genetic factors in the speakers. This has not been accepted although it is an interesting hypothesis.

The most widely accepted way that extralinguistic factors are used to explain change is in the substratum theory. The Latin of the Roman Empire was imposed on countries with other native languages, e.g. Celtic in France, and consequently the natives of these countries imposed the features of their own language on the Latin they learned. These original, or substrate languages died out in most cases, but have left their mark in the different way Latin has developed in different countries. For instance some linguists claim that the French change of Latin \( \tilde{u} \) to \( [y] \), e.g. Latin murus, French mur, is due to the Celtic substrate, or that the shift of \( f \) to \( h \), which is then lost in pronunciation in Spanish is due to the Basque substrate. In general it is accepted that some changes may be due to substrate languages but the actual extent of this is not agreed.

Much of the use of extralinguistic factors in explaining sound changes has been speculative and many changes have been found which could not be put down to these factors. This led linguists in two directions. Bloomfield, and structural American linguists

2) Brosnahan 1961, 48f.

3) Elcock 1960, 172.
in general, thought that the search for explanations or causes of sound change was fruitless. Hockett's 'Course in Modern Linguistics' contains no references to the causes of sound change, and Bloomfield said explicitly "The causes of sound-change are unknown". Other linguists, notably the Prague group, swung away from extralinguistic causes completely to the other extreme, wanting to see the causes of linguistic change in the linguistic system itself. They, and later Martinet, are the prime exponents of this view. They did not regard sound laws as blind, as the Neogrammarians did, nor fortuitous as De Saussure thought, but rather purposeful. Sound change was seen as teleological, goal directed. This might take various forms. There might be various 'goals', the removal of peripheral phonemes, e.g. /M/ in English, or of phonemes with a low functional yield, e.g. the merger of /E/ and /E/ in French, or the making of an asymmetrical system symmetrical. A more recent example of the last type of change has been given by Moulton. Classical MHG is assumed to have the following short vowel system:

4) Hockett 1958.
5) Bloomfield 1935, 385.
6) They did not say that all changes were caused by the phonological system. cf. Martinet, Introduction to Haudricourt and Juillard 1949, 9.
7) De Saussure, 1915, 127.
8) Vachek 1964.
9) Martinet 1945, 147f.
10) Moulton 1960, 155-182.
This is an asymmetrical system, since the back vowels have one less tongue height than the front unrounded vowels. In the North East of Switzerland this system was made symmetrical by the split of /o/ into /o/ and /œ/: "The asymmetry of the MGH system lay in the fact that the front vowels contained one more relevant level than the back vowels. In the West and Centre this asymmetry was removed by decreasing the number of front vowels ... In the North and East the asymmetry was removed by increasing the number of back vowels: the /œ/ of MGH offen, hose split into modern /ofe/ ≠ /hose/".11 The result of this change was a symmetrical short vowel system. There was a complementary split of MGH /ö/ into /œ/ and /œ/. Jakobson attempted to illustrate his teleological view of sound change by applying it to Russian. For example, the akanie, the merging of unstressed a and o, in Russian and other dialects, is seen as resulting from the change of the correlation: musical accent - unstressed vowels, to expiratory accent - unstressed vowels.12

Martinet, building on the work of the Prague school, developed the notion of the push-chain and drag-chain. When a phoneme moves

11) Moulton ibid., 172f.
phonetically in one direction and approaches another phoneme, e.g. 
/\textipa{A}/ \rightarrow /\textipa{B}/, then /\textipa{B}/ may also move towards another phoneme, /\textipa{C}/, 
/\textipa{B}/ \rightarrow /\textipa{C}/. This chain reaction is a push-chain, /\textipa{A}/ pushes /\textipa{B}/ 
towards /\textipa{C}/. Another possibility would of course be that /\textipa{A}/ and 
/\textipa{B}/ merge, but Martinet is more interested in the cases where this 
does not happen. If, taking the three phonemes /\textipa{A}/ /\textipa{B}/ /\textipa{C}/, /\textipa{C}/ 
moves first, away from /\textipa{B}/, then /\textipa{B}/ may well also be dragged into 
the space vacated by /\textipa{C}/, and then /\textipa{A}/ may be dragged into the 
space left vacant by the shifting of /\textipa{B}/.\footnote{13} For instance, in early 
O\textipa{HG} there were two dental obstruents (excluding the sibilants), \textipa{\textipa{\textipa{b}}}, 
and \textipa{\textipa{\textipa{d}}} . The latter was shifted to /\textipa{t}/ and the space thus left 
vacant was then filled by the shift of /\textipa{p}/ to /\textipa{d}/.\footnote{14} This kind of 
chain reaction is called a drag-chain. This approach to sound 
change was taken up by many linguists, among them Weinrich, who, 
in his studies of Romance sound change, sought to explain them 
without using extralinguistic factors.\footnote{15} A reviewer of his book 
maintained that all Weinrich's explanations were, in fact, only 
descriptions: "A mon avis, et j'espère pouvoir montrer par la 
suite qu'il est bien fondé, la phonologie diachronique ne pourra 
être que descriptive, ne saura jamais répondre à la question: 
POURQUOI? Pour répondre à cette question, il faut toujours 
recourir à des facteurs externes".\footnote{16}
This type of approach to sound change has been criticized on several grounds. The push-chains, drag-chains, development towards symmetry are only tendencies. There are asymmetrical sound systems—for instance many UG and CG dialects have two front vowel phonemes /e/ and /ɛ/ but only one back vowel phoneme /o/. Enough evidence seems to have been produced that in certain cases sound changes can be explained in terms of other changes, but there are also many changes which cannot be thus explained. Also any teleological view of sound change is circular. In the Swiss German example taken from Moulton it could be seen that the result of the split of MHG /o/ into /o/ and /ɔ/ was a symmetrical short vowel system. It was also claimed that the cause of the split of MHG /o/ was the drive towards a symmetrical short vowel system. The result and the cause are in fact the same thing. However, although criticisms have been levelled against this approach, it has produced many worthwhile results.

The scepticism which Bloomfield expressed at ever finding explanations of sound changes has been continued by generative grammarians. The most extreme position is that taken up by Postal:

"There is no more reason for languages to change than there is for automobiles to add fins one year and remove them next, for jackets to have three buttons one year and two the next".  

18) Anttila 1972, 193f.  
19) Postal 1968, 283.
On the whole, the generative school has been criticized for not seeking explanations for sound change. This is not entirely fair, since opinions among generative linguists seem to vary. King, for instance, is not as sceptical as Postal: "If there is little risk in being a cynic about the origin of phonological change, there is also very little profit. In fact, linguistics has a great deal to lose by the position that the cause of phonological change is beyond principled research". However, he does not give any clear explanation of sound change. One approach to explanation in sound change can be illustrated from Kiparsky's historically orientated article entitled 'Explanation in phonology'. He states: "I have suggested a way in which the concept of a 'tendency', which lends functionalist discussions their characteristic unsatisfactory fuzziness, can be made more precise in terms of hierarchies of optimality, which predict specific consequences for linguistic change, language acquisition, and universal grammar". For Kiparsky, explanation in sound change is determined by constraints such as the conservation of functional distinctions, i.e. a sound change will tend not to eliminate number or tense endings. When sound changes cause phonological alternation within an inflectional paradigm, i.e. lengthening of short vowels in open syllables, North German [taːɡə], but nom. [tak] or [tak], the alternation will tend to be removed to make the paradigm


21) Kiparsky 1972, 224.
Some sound changes may act together in a 'conspiracy' to produce a certain kind of phonological structure. However these constraints do not always apply. For instance modern German still retains the phonological alternation between medial voiced obstruents and final voiceless obstruents. This has been in existence since late OHG and yet has not been levelled out except in a few dialects.

We have so far used the term explanation without any real definition. In the following sections four ways in which it is used will be examined and their usefulness evaluated.

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22) For the notion of 'conspiracy' among phonological rules, see Kisseberth 1970, and for its application to historical problems, see Lass 1974.

3.2. THE EXPLANATION OF SPECIFIC CHANGES

One of the most widespread interpretations of explanation is the explaining of one event by another. Bloomfield puts this in the following way: "A favoured earlier event, the 'cause', pulls a kind of invisible string which, in some metaphysical sense, forces the occurrence of a later event the 'effect'."\(^{24}\) This assumes that one can connect some linguistic effects but not others. For instance, in the Germanic languages many original final vowels have been lost or reduced to [e]. That is one linguistic event. It is also assumed that the stress accent in Germanic, instead of falling potentially on any syllable, became fixed on the root syllable. This represents another linguistic event. Most linguists link these two events together, the fixing of the stress accent causing the weakening and loss of unstressed syllables: "The strong stress accent on the stem (or first syllable) caused in Germanic a progressive weakening of un-accented syllables".\(^{25}\) Similarly the mutation of the short and long back vowels a, o, u in the Germanic languages at various times has occurred before an i, i, or j in the following syllable. In this case it is usually said, not that one event caused another, but that one factor, the existence and nature of the following i, i and j, caused the change known as i-mutation or umlaut. The following quotation illustrates this clearly: "There are two types of mutation in O.E., one, A., which affects

\(^{24}\) Bloomfield 1934, 34.

\(^{25}\) Prokosch 1939, 133.
back vowels is caused by a following i or j, the other, B., which affects front vowels, is caused chiefly by u, or o, in some dialects also by a". This mode of explanation refers chiefly to individual conditioned changes. Where changes are not phonetically conditioned, the explanatory power of one change or factor in terms of another one is not so convincing. Attempts have been made to explain one unconditioned change in the light of another. This is the type of event which Martinet has dubbed push-or drag-chain. The Great Vowel Shift in English has been explained in this way. The two most important steps in the vowel shift are the diphthongization of the long high vowels ME ɪ and ʊ, and the raising of the long mid vowels ME ə and ɔ. Scholars have postulated causal relationships between these changes. Luick thought that the raising of the mid vowels happened first and caused the already existing high vowels to diphthongize: "Aus den näheren Umständen, wie sie insbesondere eine Vergleichung der Mundarten erkennen läßt, ergibt sich, daß die Bewegung des ersten Lautes, (e.g. ME ʊ) die des zweiten (e.g. ME ɪ) veranlaßt hat und man vornbildlich von einem Verdrängen des letzten durch den ersteren sprechen kann". Jespersen, on the other hand, thought that the diphthongization of ME long ɪ, ʊ created a hole, into which the mid vowels ME ə, ɔ were dragged: "Luick ... thinks the transition /eɪ>/ /i/ the

26) Wyld 1927, para. 103.
27) Luick 1929/40, 11, para. 477.
primary change which caused the diphthongization of /i/\(^\). But
the nexus may be equally established the other way: after /i/
and /u/ had been diphthongized, there was nothing to hinder /e/
and /o/ from moving upwards and becoming /i/ and /u/\(^n\).\(^{28}\)

It is very often not possible to establish with accuracy the
direction of the explanation in unconditioned changes such as
this. Documentary evidence may be lacking or inconclusive.
These explanations of changes in terms of other factors or events
have one great drawback: they are not final explanations. It
may be the case that the raising of the mid vowels caused the
diphthongization of the high vowels, or, that the fixing of the
stress accent on the root syllable caused the weakening or loss
of unstressed vowels. Even so there still remains the explanation
of why the mid vowels were raised in the first place, or why the
stress in Germanic became fixed to the root syllable. In other
words, final causation is not provided for at this level. The
type of explanation discussed here is of a specific sound change
or changes. These will probably only occur in one language or in
related languages and be tied to a particular period in that
language. Most linguists would accept that this level of
explanation, linking events to other events, as cause and effect,
is indeed possible but that it is a weak form of the explanation
of sound change.

\(^{28}\) Jespersen 1909, 1, 252f. The slant lines do not represent
phonemic notation!
3.3. UNIVERSALS OF SOUND CHANGE

In the last section we dealt with the explanation of individual changes, but sound changes are often more general. For instance, the raising of long mid vowels has not only caused diphthongization in English, but also in Dutch, and probably also in German.29 There is not an infinite number of sound changes but a restricted number. If these can be characterized, then an explanation can be attempted for a much smaller number. For the Neogrammarians, sound laws were fixed to one place and one dialect at one time. Consequently they did not believe in universals of sound change. For them, what was universal was that sound laws had no exceptions. However the whole question of universals has been re-opened by generative grammarians, not only on a synchronic level,30 but also on a diachronic level. This has chiefly taken the form of characterizing the possible forms of linguistic change and to what constraints they are subject.31 Universals can help to explain sound changes in that they reduce the number of possible sound changes to a finite number. Sound change is viewed as consisting of a set of meta-rules, palatalization, nasalization and so on, from which a language selects one, which, subject to certain language specific constraints, will proceed in a defined way. For instance, if a language palatalizes consonants, first the velars will be affected, then the dentals and finally the labials.

It will not affect labials only or dentals only. The consonants (only obstruents have so far been considered) will be palatalized before high front vowels first, then before mid front vowels and finally before low vowels.\(^{32}\) As an example, Italian has palatalized Latin \(k\) only before front high and mid vowels: Latin *civitatem*, *centum*, Italian *citta*, *cento*, but this has not occurred before low vowels: Latin *cantare*, Italian *cantare*. French, on the other hand, has palatalized Latin \(k\) before \(a\) as well: French *cite*, *cent*, *chanter*. This approach does not completely solve the question of causation of linguistic change, but it does attempt to overcome the ad hoc explanation of individual changes. Thus the change of Latin \(k\) to \([\text{ʃ}]\) and further to \([\text{s}]\) in French is not seen as an isolated change but as part of the larger change of palatalization. Chen cites examples from many different languages that make his thesis seem plausible, but he has to admit there are exceptions. In Ancient Greek IE /kw/ and /t/ are palatalized to /t/ and /s/ respectively before /i/ and /e/. However IE /k/ remains unpalatalized before /i/ and /e/. According to Chen's scheme, if a dental stop has been palatalized then a velar stop will have been palatalized as well. The reason for this exception, he says, is that IE /kw/ and /t/ are involved in a drag-chain. IE /s/ became /h/ in Ancient Greek, initially and medially, and the space left by the shifting of medial IE /s/ was filled by the

\(^{32}\) Chen 1973a, b.
palatalization of IE /t/ before /i/ in certain cases (there are exceptions to this).\textsuperscript{33} The gap created by the change of /t/ to /s/ before /i/ was then filled by IE /kw/ becoming /t/ before /i/ and /e/.\textsuperscript{34} Language specific changes like this drag-chain in Ancient Greek can invalidate the universal trend of palatalization. This example may well turn out to be an isolated case, but on the other hand it belies the strong predictive power that Chen would like his theory to have.

Another approach to the problem of universals has been to set up universal strength hierarchies. For example, if obstruents are deleted in a language, velars are most likely to be deleted first, then dentals and finally labials.\textsuperscript{35} Lass, in his study of Old English obstruents, comes to a different conclusion.\textsuperscript{36} When stops become weakened to fricatives the order is: dentals first, then labials and finally velars. He does not think that this negates Foley's order of velars, dentals and labials, but that he is dealing with intervocalic lenition, whereas Foley is dealing with the deletion of consonants. Counter-examples to Foley's order can be provided from Dutch where /d/ is deleted.

\begin{itemize}
\item \textsuperscript{33} Buck 1933, para. 141: "The assimilation of $\tau$ before $l$ is seen in large classes of words. But $\tau$ may also remain unchanged before $l$, and the precise conditions governing this difference of treatment cannot be satisfactorily formulated".
\item \textsuperscript{34} Chen 1973\textsuperscript{a}, takes his interpretation from Allen 1957-8, 122f.
\item \textsuperscript{35} Foley 1972, 96f.
\item \textsuperscript{36} Lass 1971.
\end{itemize}
intervocally, whereas the labial and velar obstruents remain. Also historically the Germanic dental fricatives between vowels /b/ and /d/ have generally been lost in Dutch, e.g. English weather, feather, Dutch weer, veer, whereas the other fricatives have remained, leven, regen. Perhaps there should be a different hierarchy for fricatives? This search for universal hierarchies is still very speculative and more detailed studies must be available before it can be proved to have a more solid foundation. A phenomenon which is similar to strength hierarchies is the concept of the Reihenschritt. If one phoneme of a phonetic order changes, then all the other phonemes of the same order change in the same way. A classic example is provided by the First Sound Shift where each member of each order of consonants changed its manner of articulation: the voiceless stops /p, t, k/ became the voiceless fricatives /f, b, x/, the voiced aspirated stops /bh, dh, gh/ became either voiced stops or voiced fricatives according to their position in the word /b/b, d/d/, s/s/, the voiced stops /b, d, g/ became voiceless stops /p, t, k/. Similarly all the MHG long high vowels, MHG /i, iu, u/ diphthongized, not just one or two of them. The concept of Reihenschritt has been adopted by Kranzmayer, who handles his

38) Loey 1939, 33ff.
39) Pfalz 1918 used Reihenschritt for vowel changes. A free translation in English might be 'parallel development'.
40) Pourquet 1954.
changes in terms of Reihen rather than under the traditional headings of vowel and consonant changes. Martinet takes up this concept to show how sound changes proceed by changes in distinctive features. In generative grammar the fact that parallel groups of sounds may change has been accounted for in terms of 'natural classes': "Phonological changes tend to affect natural classes of sounds (p, t, k, high vowels, voiced stops), because rules that affect natural classes are simpler than rules that apply only to single segments." The use of the word *tend* is significant in this quotation since these changes do not always take place. We have already quoted the example of Dutch medial /d/ which is deleted but the other medial obstruents are not. Similarly, Germanic /p/ and /t/ have been deleted in the development of Dutch but not the other obstruents. On the basis of natural classes one cannot always predict that of three voiceless stops, if /t/ becomes an affricate, then /p/ and /k/ will become affricates as well. This may perhaps happen, as it does in some UG dialects, but it is by no means automatic.

Any universals that do exist seem, at the moment, to be only universal tendencies. Similar changes can be seen at work in

41) Kranzmayer 1956, VIIf. and 9f.
42) Martinet 1952, 17.
43) King 1969, 122.
44) Even Chen uses the term 'tendency' 1973, 183.
many genetically unrelated and geographically widely dispersed languages. These universal tendencies are said to "originate in the common articulatory and perceptual mechanisms used by human speakers and listeners". The important thing that this search for universals has shown is that sound change, or phonetic drift, is not random but, all things being equal, sound changes, e.g. palatalization, will proceed in a predictable way, e.g. affecting velars first, then dentals and finally labials. But unfortunately in languages all things are not equal. Many other factors intervene. There may be the influence of the rest of the sound system, the morphology and syntax, and external influences from other dialects or languages. The social prestige of certain forms and the desire to avoid a homonymic clash may influence changes. All these factors may and do interfere in the smooth outworking of these universal tendencies. There seems no way of predicting when these other factors will intervene. The search for universals has still not supplied an answer to the problem of the explanation of sound change in general.

3.4. GENERAL HISTORICAL EXPLANATION

Bloomfield outlines this type of explanation in the following terms: "Where the facts are accessible, we can define a feature of a language in terms of some earlier habit plus a change of habit".\(^{46}\) This is something which belongs to the explanation of most things. Something in the present can always be explained by saying that it represents something in the past plus a change. The strange shape of a house, for example, may be explained historically by saying that in the past there were two houses, which were then joined together. A linguistic example would be the explanation that umlaut in NHG is due to the fact that in OHG the vowels affected were followed by an \( i, ï, \) or \( ì:\)

"Umlaut is used to express the change from a, o, u and au to ä, ö, ü and äu respectively ... . The cause of these vowel-changes can, as a rule, not be seen in modern German: in order to understand them, one requires to go back to the earlier stages of the language".\(^{47}\) This type of explanation is of limited use in linguistics since it is common to all disciplines which have a historical branch. It has also fallen out of favour since it mixes the synchronic and the diachronic. De Saussure in his discussion of the necessity of separating the synchronic from the diachronic uses umlaut of noun plurals as part of his argument. He takes two stages in the development of German and

\(^{46}\) Bloomfield 1934, 34f.  
\(^{47}\) Eggeling 1961, 34f.
English: At stage A the pl. of some nouns is formed by adding -i: OHG gast, gasti, OE fôt, fōti. At a later stage B, the pl. is formed by changing the vowel, and in the case of German, adding -e: Gast, Gäste, foot, feet. For De Saussure, these ways of marking the pl. have no historical connection. The only connection is between individual forms, e.g. gasti, which becomes Gäste. For him, umlaut in NHG would not be explicable in terms of OHG. This attitude of De Saussure's seems to have influenced linguists in turning away from the diachronic study of language to place more emphasis on the synchronic study of language. This represents, in other disciplines as well as linguistics, "a general loss of faith in the efficacy of historical explanation. We try to understand our present position by analysing the component forces in play, not by tracing post facto the long chain of major forces which have brought it about but may have ceased to operate". However in recent years since that was written the strict separation of synchronic and diachronic has been brought into question, especially through the use of 'rules', which may be used synchronically and diachronically. Even so, this level of explanation is very general and is characteristic of historical linguistics in general. It can be applied to almost any form of any language. It does not help us explain sound change or sound changes.

48) De Saussure 1915, 120ff.
49) Trim 1959, 19.
50) Saporta 1965.
3.5. THE PREDICTIVE POWER OF LINGUISTIC EXPLANATION

This level of explanation can be characterized as the one "in which we could account for the occurrence of a certain linguistic change at a certain place and time: e.g. Why did pre-Germanic change p, t, k to f, h or why did English analogically extend the -s pl. of nouns? The answer would be a correlation of linguistic change with some other recognizable factor enabling us to predict the occurrence of a linguistic change whenever this factor was known".\(^{51}\) Bloomfield sets this up as a goal to be reached, but does not offer, here or elsewhere, any solution. Nor, must we say, has any linguist to date. Chen, who deals with prediction in phonological change, has to set his sights lower: "Even though we cannot predict that palatalization will take place in language X, we can nevertheless predict that if palatalization occurs at all it will spread along two dimensions or axes".\(^{52}\) Once a sound change has taken place, its course can be predicted within certain limits, but we cannot predict why palatalization should take place in French but not in Dutch.

This has been called the 'actuation problem' by some scholars: "Why do changes in a structural feature take place in a particular language at a given time, but not in other languages with the same feature, or in the same language at different times?"\(^{53}\)

\(^{51}\) Bloomfield 1934, 39f.

\(^{52}\) Chen 1973a, 177

\(^{53}\) Weinreich, Labov and Herzog 1968, 102.
For instance, why did the Germanic long high vowels diphthongize in German, English and Dutch but not in the Scandinavian languages? This type of question is the strongest and most interesting demand that could be made of a theory of explanation in historical linguistics. Unfortunately no answer can be given to it with the present state of linguistics, and it is doubtful whether there will ever be an answer.
3.6. CONCLUSION

What can be reasonably demanded of a linguistic theory is that it should explain language specific changes. This is how explanation will be considered here and used in our history of German. Other types of explanation are far more difficult, if not impossible, to formalize. Research into universals may help, but much more evidence for many more different processes will have to be forthcoming before it is based on a surer footing.

One thing, however, on which most linguists are agreed is that languages are subject to change, that there is variation in performance. Where they differ is on the emphasis placed upon this. The fact that language is subject to change does not explain sound change (this variation is characteristic of language), but it does point to the possible origin of sound change. Variation in the spoken chain produces variants in pronunciation, grammar and vocabulary. The important thing is what happens to these variants once they have arisen for whatever reason. Two things are important here. The variants may be idiosyncratic and not spread at all, or they may find their way into the linguistic system.54 It is at this point that the question 'why?' may begin to be asked. Here we find ourselves at the level of ad hoc language specific explanations. These entail what has been called the 'transitional problem', i.e. what

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54) Samuels 1972, 140.
intermediate forms there are, the 'embedding problem', i.e.
how does a change fit into a) the linguistic system as a whole,  
and b) into the social structure of the users of the language  
concerned? There is also the 'evaluation problem', i.e. how  
the speakers themselves reacted to the change. The question  
'why?' seems only answerable in the case of why a particular  
variant was selected by the linguistic system in a certain case,  
rather than saying why one was not selected.  

Explanations or causes of sound changes can be given as long as  
it is realized that they merely entail connecting phenomena to  
their effects, the reason for the selection of a particular  
variant or process may be due to several factors, in other words  
there may be multiple causation. All such explanations are  
ad hoc, even though they represent a selection from a restricted  
range of sound changes. The ultimate causes of sound change  
are unknown but in many cases we can see with varying degrees  
of confidence what the immediate causes are.  

57) Samuels 1972, 155f.
4. METHODS OF RECONSTRUCTING THE
PRONUNCIATION OF 'DEAD' LANGUAGES

4.1. INTRODUCTORY

A present day language is known to us through both the spoken
and the written medium, but our knowledge of languages from the
past is restricted to the medium of writing. One of the main
tasks of the historical linguist is to reconstruct the
pronunciation of languages which are no longer spoken, to fill
'dead' letters with life. "Er muß über die toten Buchstaben
hinaus bis zu den tatsächlichen Lautwerten, die mit den Buchstaben
gemeint sind, vordringen".\(^1\) However the task of doing this has
tended to remain rather on the periphery of historical linguistics.
One of the difficulties has been the relationship between speech
and writing. Grimm used only 'Buchstaben' and seemed to assume
that sounds and letters were in a one-to-one correspondance.\(^2\)
However it was soon discovered that this was not the case, and
that every change in spelling did not automatically mean a change
in pronunciation: "Es hat sich vielmehr die Erkenntnisse aufgedrängt...
daß die Lautgeschichte mit den Wandlungen der Orthographie
ganz und gar nicht identisch ist".\(^3\) This was also recognized by
Paul: "Es ist wichtig für jeden Sprachforscher niemals aus den

\(^{1}\) Kranzmayer 1956, 4.
\(^{2}\) Grimm 1822.
\(^{3}\) Kauffmann 1892, 243.
Augen zu verlieren, dass das Geschriebene nicht die Sprache selbst ist, dass die in Schrift umgesetzte Sprache immer erst einer Rückumsetzung bedarf, ehe man mit ihr rechnen kann, but he gives no clues as to how to reconstruct the pronunciation of texts of former times. Kauffmann comments in more detail on this in a later work. He mentions two things as aids to the reconstruction of pronunciation of OMG: the development of sounds in MHG and NHG, and the values of sounds in modern dialects. Jespersen and Wright give a brief account of "the chief sources for ascertaining the approximate pronunciation of the speech-sounds of our ancestors". The types of evidence they suggest, which coincide almost exactly, comprise statements by phoneticians and grammarians, (including foreigners teaching English to their own countrymen), rhymes by poets, and occasional phonetic spellings. In addition Jespersen mentions puns. Since there is so much agreement between them, it seems that these principles had been thought out years before, but they are hardly, if at all, stated explicitly in works written in the Neogrammarian tradition. Even in very recent works on historical linguistics they are barely mentioned. Samuels deals with them in one sentence, and Anttila deals only with inverse spellings.

4) Paul 1920, 373.
5) Kauffmann 1917, 36 and 45.
6) Jespersen 1909, 1, 3-13.
7) Wright 1924, 3.
8) Samuels 1972, 4.
9) Anttila 1972, 36.
Bloomfield deals with this problem in slightly more detail. The 'real phonetic values' of letters can be ascertained by the occasional spellings of words by scribes or inverse spellings. Rhymes may furnish more clues, as well as loan words. Finally there are statements by grammarians, but these must be treated with caution. Generative linguists have also not dealt with the principles of reconstruction of pronunciation. Chomsky and Halle assume the traditional analysis of Middle English and reconstruct the phonological changes by using the works of contemporary phoneticians through the centuries. They never make their principles explicit. Kranzmayer and Penzl are notable exceptions to this general lack of explicitness in this question of the methods of the reconstruction of pronunciation. Kranzmayer, for instance, uses four historical sources "um... die leeren Lautsymbole ... zum wirklichen Leben zu erwecken". These are: the old German dialect speech islands in Eastern Europe and Italy which were settled in the early Middle Ages, loan words from German in other languages, medieval literary German with rhymes which reflect dialectal pronunciation, and the written language of legal documents. Kranzmayer uses all these sources in his exposition of the historical phonology of Bavarian. Penzl, whose main concern has been with the history of standard


German, uses the following sources for ascertaining the pronunciation: evidence from spelling, i.e. occasional or inverse spellings, evidence from loan words, and comparative evidence which, in his opinion, includes not only evidence from other languages of the same language family but also from the dialects of the same language.\(^{13}\) In later works he adds another source, viz. the comparison of the assumed pronunciation with previous or, more importantly, subsequent sound changes: "Durch Vergleich mit den angenommenen Lautveränderungen und Lautwerten in der späteren Entwicklung können wir nicht nur Phoneme, auch deren Allophone mit konkret phonetischen Eigenschaften zu bestimmen versuchen".\(^{14}\) Penzl has written two detailed case histories, and other articles on sound changes, on how to reconstruct pronunciations.\(^{15}\) One of the main sources emphasized in practice by both Kranzmayer and Penzl is the study of modern dialects. This is not a new principle since Kauffmann set it out earlier, along with the spelling and rhymes of MHG poets. It seems a source which has been particularly relevant for the history of German. Although dialect studies started at almost the same time in England and Germany, they developed more quickly in Germany, and much more dialect material has always been available to the linguist investigating the history of German.\(^{16}\)

\(^{13}\) Penzl 1957, 197-200, and 1972, 72-79.

\(^{14}\) Penzl 1971, 21.


\(^{16}\) Bach 1950, Brook 1963.
Two detailed reconstructions of the pronunciation of Latin and Greek have been produced by Allen. In the foreword to both books he lists six sources for the reconstruction of pronunciation, all of which we have already covered. One of his principles is 'development in the Romance languages', i.e. the way in which sounds have developed in the Romance languages may help us to reconstruct their phonetic value in Classical Latin. For example Classical Latin short \( \text{i} \) and long \( \text{e} \) merged in Italian and some other Romance languages, as did Classical short \( \text{u} \) and long \( \text{a} \). Allen deduces from this that "for late Latin at least short \( \text{i} \) and \( \text{u} \) will have been nearer in quality to long \( \text{e} \) and \( \text{a} \) than to long \( \text{i} \) and \( \text{u} \), and long \( \text{e} \) and \( \text{a} \) nearer in quality to short \( \text{i} \) and \( \text{u} \) than to short \( \text{e} \) and \( \text{a} \)." This is a much clearer exposition of what Penzl meant by the use of subsequent sound changes to ascertain the pronunciation of sounds.

Some linguists have gone to the other extreme and, although not denying that pronunciation can be reconstructed, they want to emphasize the study of the orthographic features of texts in their own right. These studies are undoubtedly valuable, but our task here is to try and reconstruct the pronunciation of MHG and the sound changes to NHG. In this section we want to set out methods of doing this very explicitly. One important thing that cannot be stressed too much is that we cannot rely on one type of evidence.

19) McIntosh 1956. This approach is partially adopted by Fleischer 1966.
alone. There is no need to be pessimistic or cynical about the task of reconstructing pronunciation. Allen is quite positive about it: "The degree of accuracy with which we can reconstruct the ancient pronunciation varies from sound to sound, but for the most part can be determined within quite narrow limits". 20

20) Allen 1965, vi.
4.2. STATEMENTS ON PRONUNCIATION BY CONTEMPORARY OR NEAR CONTEMPORARY GRAMMARIANS AND OTHER WRITERS

This is the nearest one can come to direct evidence for pronunciation in the past, but, even so, it is subject to many limitations. Evidence like this is not available for all languages at all times. The classical languages, for instance, are quite well endowed in this respect, particularly Sanskrit, but evidence for the other European languages does not really start till after the Renaissance when, with the decline in Latin, the vernacular languages began to be widely used. There is, however, one isolated example in the Germanic languages of a contemporary phonetic description of a language at an earlier date. This is the account of the spelling and pronunciation of twelfth century Icelandic by the so-called First Grammarian. His phonetic descriptions are for the most part quite accurate. For instance he noticed that the letter n before g was pronounced as a velar nasal, "The n which comes immediately before a g in one syllable is spoken less in the nose and more in the throat than the other n's, because it received some slight admixture from the g". He also recognized nasal vowels as distinctive in Old Icelandic, a fact which scholars had not hitherto assumed. His is the only evidence for them, "But now each of these nine letters will produce a new one if it is pronounced

22) Editions by Haugen 1950; Benediktsson 1972.
23) Benediktsson 1972, 237.
through the nose, and this distinction is in fact so clear that it can change the discourse, as I shall now show in what follows, and I shall place a dot above those that are pronounced through the nose: har 'hair', hər 'shark'.

This work is an outstanding exception in the Germanic languages unmatched by any other.

Statements about the pronunciation of German do not really start till about the sixteenth century. A useful collection of short works is provided by Müller, and for later periods one has the grammars by Schottel, Gottsched and Adelung. One obvious drawback of using such writings to ascertain the pronunciation of the language of the time is that phonetic knowledge at that time was not very advanced. For instance the use of the term hart does not specify whether this should be voiceless or fortis. The following is a typical quotation: "Das /b/ und /p/ sein auch gleich/ allain das /p/ herter ist dann das /b/ Also auch das /t/ dann das /d/". There is clearly a distinction, but the exact nature of it is still unclear.

Furthermore the descriptions frequently do not tell us what we would like to know. For instance the description of the pronunciation of the letter g "so die zung das eusserst des gamens berürt / wie die Gens pfeyesen wenn einen anlauffen

\[\text{24) Benediktsson ibid., 217.} \]
\[\text{26) Müller 1882, 130.} \]
zûbeysen"\textsuperscript{27} does not state clearly whether it is pronounced as a stop or a fricative. On the other hand, some descriptions are quite detailed, particularly as to the place of articulation. The pronunciation of \( f \) is described as follows: "Das \( /f/ \) würdt geblasen durch die zene/ auf die untern lebtzen gelegt /und stymmet wie naB oder grün holtz am feure seit".\textsuperscript{28} This is obviously the description of a labio-dental fricative. In some instances contemporary descriptions are plainly wrong. The umlaut vowels are sometimes described as being diphthongs.\textsuperscript{29} Double letters are sometimes taken as being pronounced double by Frangk: "Diese wort/ hofeman/ hefen/ teufel u./haben ein f / hoffen /teuffen/helffen u./ zwey ff/ Solchs lernt die aussprache".\textsuperscript{30} This could conceivably be true of \( ff \) intervocally which was originally a long sound after short vowels, but improbable after a diphthong, and impossible after \( l \). In the study of German we are unlucky in not having a phonetician of the status of John Hart, Wallis or Cooper,\textsuperscript{31} although there are a few interesting comments on pronunciation in Müller's collection of articles which help to show when a sound change has taken place.

As well as comments by grammarians for native speakers there is

\textsuperscript{27} Müller ibid., 128.
\textsuperscript{28} Müller ibid.
\textsuperscript{29} Müller ibid., 66.
\textsuperscript{30} Müller ibid., 100.
\textsuperscript{31} See Dobson 1968, Vol. 1.
also evidence provided by foreigners who want to describe
English to their compatriots. These sources are generally
regarded as being less reliable than those provided by native
speakers, since their mastery of the language is not
always perfect. There do not seem to be many works for English
people learning German. The best example that could be found is
the High Dutch Minerva of 1680. In this work the German
sounds are described in terms of English ones: "AE short as
the English EA, e.g. to learn i, laernen, to earn i, aernen, or
aernden, oft one for another ...". This tells us about the
pronunciation of English at that time, as well as German, since
the English sequence ear is now pronounced [ɛ:], but in some
dialects that retain post-vocalic /r/ it is still pronounced [ɛr].
This statement tells us that phonetically the type of German
described did not distinguish between short AE and E. By this
time in this type of German the merger of MHG short /e/ and /ë/
had taken place. This first type of evidence is of two kinds.
As in the last case it may merely show us what sounds were
considered to represent the same pronunciation, or in the case
of /f/ it may tell us the place of articulation. Such sources
have to be used with caution remembering Jespersen's warning:

32) Jespersen 1909, 1, 6.
34) Ibid., 4.
"It would be an extremely grave error to suppose that every little notice found in an old grammar about the pronunciation of such and such a word is the exact truth ...".\(^{35}\)

\(^{35}\) Jespersen 1909, 1, 9.
4.3. THE USE OF LOAN WORDS

Words borrowed into languages suffer many fates. They may contain sounds already present in the borrowing language, e.g. kitsch borrowed from German by English. They may be altered from their original form to the sound pattern of the borrowing language: in North German the French nasal vowels are replaced by a vowel plus a velar nasal: Bonbon is pronounced \[\text{b\text{"o}n\text{"o}n}\], Chance is pronounced \[\text{ca\text{"a}\text{"a}}\] since German has no nasal vowels.\(^{36}\) In other cases the words may retain their original sound, which is eventually borrowed into the sound pattern of the borrowing language, if sufficient words are borrowed, e.g. /\text{j}/ in NHG.

For the reconstruction of pronunciation, the optimum state of affairs is when the sound can be assumed to have remained the same, either if it merges with an already existing sound, or if it provides the borrowing language with a new sound. In many cases, however, the sound in the word which is borrowed is adapted to the phonological system of the borrowing language and merges with the phonetically nearest phoneme. This occurs very frequently and on this basis the use of loan words to establish pronunciation must be very tentative and always backed up by other evidence.

If the borrowed sound exists in a present-day language then the reconstruction is on much firmer footing. This is the case with

\(^{36}\) Wörterbuch der deutschen Aussprache, 184 and 189, (WDA).
the use of Old French loan words in modern English to establish the pronunciation of Old French. The initial affricate in English chant, chain, is presumed to represent the Old French pronunciation of initial ch. These words were borrowed into English in the Middle Ages at a time when initial ch was pronounced [ts]. In the history of French this affricate has become simplified to the fricative [s]. When words like chant were borrowed into English, they merged with an already existing ch from Germanic k by palatalization, church, chin, chicken.

The dating of the French change of [ts] to [s] is also provided by loan words. MHG did not possess an initial [ts], but it borrowed many words from French with initial [ts]. Many of them have two forms, beginning with either [ts] or [s] and some have only initial [s]. From this it is concluded that when MHG borrowed these loan words from French, during the thirteenth century, Old French initial [ts] was changing to [s].

These last examples were relatively easy to interpret, but in other cases the conclusions have been more difficult to draw. Many scholars consider OHG s to have been pronounced more like sch than s. To support this theory they have cited German loans in Slavonic where OHG s has been rendered by Slavonic [s], Wendish spel, OHG spil, Czech otola, German Stollen. In OHG s

is used to render \( g \) in Slavonic place names. In 1030 the village name Scheufling was written Suylich.\(^{39}\) Since Hungarian began to be written in the Latin alphabet about this time, the Hungarian use of the letter \( g \) to render \([g]\) (whereas \( sz \) is used to render \([s]\)) has also been cited to support the hypothesis that OHG \( g \) was pronounced like \([x]\).\(^{40}\) Since OHG \( x \) is also used to render Slavonic \( z \), Schwarz assumes that it was voiced, but Lessiak is a little more cautious.\(^{41}\) Much of this must remain speculation, since in NHG the OHG \( g \) is represented by \([z]\) initially before vowels, \( sages \), and medially between vowels, \( lesen \), \([s]\) when doubled, \( Messa \), and finally, \( des \). Only initially before consonants has it developed to \([s]\).

The German pronunciation of Kaiser with the diphthong \([ai]\) is often cited as a pointer that Latin \( ae \) was pronounced as a diphthong at the time of the borrowing.\(^{42}\) It may certainly have been a diphthong, but we do not know its exact phonetic realization. It may have been \([ai], [æ] \) as in NHG, \([ei] \) or \([xi] \). This type of evidence more than any other must be used with the utmost caution. There are a number of pitfalls to be avoided. Both the sound in the borrowing language and in the language from which it was borrowed may have changed. In the case of

\(^{39}\) Schwarz 1926, 39.

\(^{40}\) Porzig 1950, 276; Lockwood 1965, 60.

\(^{41}\) Schwarz 1926, 14f.; Lessiak 1933, 87, is a little more cautious.

\(^{42}\) Allen 1965; 60, Porzig 1950, 275f.
Latin *caesar* and OHG *keisar* we are working with two unknowns, whereas with English *chant* at least there is the present day phonetic evidence.

When words are borrowed into another language they most frequently change their form to become adapted to the sound system of the language concerned. Some examples of borrowings from English by NHG will be used to illustrate this. The English word *Job* [dʒɔb] has been borrowed into NHG with the widespread pronunciation [tʃɔp]. All final obstruents in NHG are devoiced, and, since NHG does not usually have the initial cluster /dʒ/, it is merged with the nearest sound /tʃ/. English /a/, which varies phonetically from [æ] to [æ], is perceived and pronounced by Germans as [ɛ], since they have no [æ], although it is still written 'a', e.g. *trampen*, [tʁampen].

43) WDA, 305, gives [dʒɔp].
45) WDA, 496.
4.4. PHONOLOGICAL DEVELOPMENT IN THE LANGUAGE ITSELF

In some cases sounds which contrast in a present day language do not contrast orthographically in an older period of the language. Unless there is good reason for us to assume that they have resulted from the split of one sound then it can be assumed that the phonemic contrast of the language in its modern period also existed at an earlier stage. A good example of this is the assumption of short and long high vowels in MHG.

In writing no distinction was made between them in MHG: wibe, libe, siben, spiln, are all written with i. However if we examine their reflexes in NHG we find that wibe, libe are represented by diphthongs, Weibe, Leibe whereas siben and spiln are represented by long vowels [zi:ben], [spi:lon]. There is no evidence to show us that the phonetic values in NHG resulted by a split from one original MHG sound. Since they are distinct in NHG, we can also assume that they were distinct in MHG.

However this does not tell us how they were distinguished in MHG. By contrast, the modern English contrast /u/ : /ʌ/, as in put, putt, is not assumed to have existed in Middle English.

The vowels of ME ful, putte, up, thus, hunte were all written with the same sign, u. In modern English, however, full, put are pronounced with [u] and up, thus, hunt with [ʌ]. According to the principle we have set up, we can assume the /u/ : /ʌ/ contrast for ME if there is no evidence of a phonemic split of ME /u/. In this case, unlike the MHG case just mentioned, there is evidence of a phonemic split. The distribution of the phoneme
/u/ is restricted. Words in modern English written with u and pronounced [u] usually begin with a labial, e.g. pull, full, put, butcher, bull, pully and often end in l, whereas [ʌ] does not appear so often after initial labials. It has been assumed that ME /u/ developed a lowered, less rounded allophone [ʌ], except after labials. At one time [u] and [ʌ] were in complementary distribution. Due to the shortening of ME ʊ, which had then been raised to ʊ before k, as in book, look, cook, minimal pairs like look: luck = /u/ ≠ /ʌ/, were created. There is additional evidence that most northern and North Midland dialects do not show a split of ME /u/. This however belongs to section 4.7. This brief outline shows some of the reasoning why we would not want to project the modern English /u/ ≠ /ʌ/ opposition back into ME.

Another example of a present day contrast which can be projected back into the past is the case of Modern French /u/: and /ɔ/, as in court, porte. In Old French these words were written cort and porte. There is no evidence that the modern French sounds resulted from the split of one Old French sound, so this contrast must be assumed for Old French as well. Another example is from English. In ME, rote and note have the same vowel sign. However in modern English these two words are pronounced [ruːt] and [nəut].

46) Gimson 1962, 112ff. There are exceptions, e.g. bulb, butter etc.

47) Kurath 1964, 96.
This distinction in Modern English cannot be seen to result from a split of a single sound in ME. It must be assumed that the symbol o in ME represents two phonemic values.

This method of reconstruction is quite effective for projecting contrasts in the present back into the past, even if there is little or no orthographic evidence for the distinction in ME or MHG. In this way phonemic oppositions can be established, but not the exact phonetic realization of the phonemes.
4.5. SPELLING CONVENTIONS AND VARIANTS

In many texts, particularly in Early NHG, the spelling seems to be in a great state of flux. Many words are spelt differently even in the same sentence. The same sign is used randomly, varying with different ones in different words. For example, the NHG word *Zeit* is written in one text: *zeit, zeyt, zit, zyt* and the NHG word *Bein* is written: *bein, beyn, bain.* There is an overlapping of the signs *ei, ey* in the spelling of these two words. In some words *ei, ey* alternate with *i, y* and in other words with *ai.* If, instead of looking at the individual signs, we look at groups of signs, then the fluctuation seems less random and more capable of regular description. In the example just quoted, we have, what might now be called two graphemic 'variables', one comprising the set // i, y, ei, ey // and another comprising the set // ei, ey, ai //. Since there are two sets of signs, even though *ei* and *ey* occur in both of them, it is assumed that we are dealing with two different sounds, which are in opposition. This is further supported by the fact that the words in these two sets never rhyme. For the texts in question we can say that the reflex of MHG /i/, represented by the set /ei, ey, i, y/, and the reflex of MHG /ei/, represented by the set /ei, ey, ai/, are still distinguished. Sometimes, however, the mere establishment of two sets is not sufficient in itself to show whether two sounds are still kept apart. Statistical evidence can help still further. We are fortunate in having

48) Philipp 1968, 4f. and 93ff.
suitable statistical evidence available for a Bavarian text of the seventeenth century. MHG/i/ and /ei/ are again represented by two sets, MHG/i/ by the set /ei, ey, i/ and MHG/ei/ by the set /ei, ey, ai, ay/. It seems, on the face of it, that this is a similar situation to the one in Murner's works, MHG/i/ and /ei/ are still kept apart. However if we examine the percentages of each sign, we are forced to a different conclusion. The percentages of the signs representing MHG/i/ are as follows: 73% of the words have /ei, 24% have /ey, and 1% have /i/. In the case of MHG/ei/, 60% of the words have /ei, 1% have /ey, 20% have /ai and 10% have /ay/. In this case the sign with the largest combined percentage is /ei with 133% out of 200%. The other signs are really only in occasional use. From this it may be inferred that the reflexes of MHG/i/ and /ei/ have, in fact, merged. The evidence of statistics can help us decide whether two sounds have merged or not. Unfortunately this type of evidence is not available for all texts.

Changes in spelling most often happen when phonemic mergers take place. In the case of the merger of MHG/i/ and /ei/ the sign /ei becomes predominant. This also happened in the case of the merger of MHG/s/ and /z/ when s eventually became used as the main sign. The first sign of a phonemic merger is that two signs, which hitherto have been kept carefully apart, become used wrongly.

49) Piirainen 1968, 103ff. and 109ff.
50) Piirainen 1968, 114.
e.g. das is written for MHG daz, and allez for MHG alles.51 This type of evidence is known as inverse spellings.52 At the beginning of the orthographic recognition of a merger this may not happen very frequently and then such variations, or 'slips', are often called occasional spellings. Such spelling 'mistakes' usually show any phonemic change which involves conditioned merger, and changes in the incidence of phonemes.53 The conditioned merger of MHG /w/ and /b/ after /l/ and /r/ is reflected in ECG documents in the use of the letter b for /w/ in this position.

The irregular representation of MHG /ã/ by [o:] in NHG is reflected in ECG written sources by the use of the letter o for MHG /ã/ in certain words, e.g. ohne for MHG ̀ane.54

Other phonemic changes may also be reflected in orthography but not to the same extent. Phonemic shifts are sometimes reflected in changes in orthography, e.g. the shift of Germanic ã to ã is reflected in the change in OHG orthography from th or dh to ã. However in the history of English the Great Vowel Shift is not reflected in orthographic changes, ME ð and ð are still written i and ou, and ME ð is still written oo. The shift of Latin ð to French [y], Latin tu, French tu, is also not reflected in the orthography at all.55 This is evidence of the fact that phonemic shifts do not normally affect the number of phonemes in

51) Schulze 1967, 38f.
52) Jespersen 1909, 1, 4.
53) Penzl 1957, 200f.
54) Fleischer 1966, 85; Kettmann 1967, para. 6 b.
the phonological system, but only the phonetic relationships
between them. Very often phonemic splits also only receive
belated recognition in the orthography although they produce
new phonemes.\footnote{Penzl ibid., 201.} We are only concerned with phonemic splits,
which result from a change in the conditioning factors of
allophones, which are in complementary distribution and produce
new phonemes. This applies to the umlaut vowels in German,
particularly NHG \textipa{o} and \textipa{u}, which were often written without \textipa{u}
in MHG and Early NHG.\footnote{V. Moser 1929, 1, 1, para. 16.} The split of MHG /n/ into /n/ and /\v/\textipa{e}/ has no reflection in spelling, except that the sequence \textipa{ng} in
NHG can always be read as [ŋ], \textit{(but see p. 218)}.\footnote{Penzl 1957, 198.}

Most sound changes usually result in a change in orthography and
consequently a study of orthographic signs is one of the most
important clues to pronunciation and sound changes. It must be
added that some changes in orthography do not reflect changes in
pronunciation, e.g. the change of OE \textipa{hus} to ME \textipa{house} was merely
the introduction of the Anglo-Norman digraph \textipa{ou} for OE \textipa{u}.\footnote{McIntosh 1956, 33.} Also some
variation in texts, e.g. \textipa{erbe} and \textipa{erthe} merely reflects orthographic
variation and not variation in pronunciation.\footnote{Penzl 1957, 198.} Apart from
these cautionary remarks, spelling and its changes remains a
major source for the reconstruction of sound changes and
pronunciation.
4.6. THE EVIDENCE FROM RHYMES AND PUNS

The evidence from rhymes and puns tells us which sounds were pronounced in the same way or considered to be pronounced in the same way, and by implication, those sounds which were not rhymed were not pronounced the same. Like the other methods of reconstruction which we have considered, rhymes tell us little about the actual phonetic realizations of the sounds, but only whether they contrast with other sounds or not.

Rhymes can usually tell us about stressed vowels, intervocalic consonants and final consonants and vowels. Initial consonants are not accessible by this method. When, in the oldest Germanic poetry, the alliteration of initial consonants and vowels was demanded by poetic convention, then the value of initial but not medial and final sounds could be deduced.

Rhyming practice has been one of the main supports for the view that MHG possessed two short e sounds, a close [e], historically from Germanic a by umlaut, and an open [ɛ], representing Germanic e. Most MHG poets did not rhyme these two sounds, and even though they are both spelt e it is assumed that MHG had two phonemes /e/ and /ɛ/.

ME had two long e sounds, /e/ and /ɛ/. In Modern English they have both merged in [i:], meed, mead. However in the seventeenth

60) Philipp 1968, 3.
61) Penzl 1972, 74.
62) Zwierzina 1900.
and eighteenth century there is evidence from rhymes that there was one type of English in which ME /e/, meed, was separate from ME /è/, mead, which rhymed with the reflex of ME/æ/ and /aɪ/, made, maid. This type of English existed side by side with the type in which ME /e/ and /è/ merged in [iː], which became the standard pronunciation. Most of the evidence for a type of English where ME /e/ merged with ME /æ/ and /aɪ/ is provided by rhymes, e.g. weak-take. The two words that rhymed then no longer rhyme in Modern English. This example has shown that we can find out which sounds have not merged, but rhymes can also help us to find out which sounds have merged.

In early MHG final /z/ and /s/ did not rhyme, but in the late fourteenth century there is evidence that by then they had merged, since now they did rhyme: This can be illustrated by some lines from Meier Helmbreht, composed in the late thirteenth century:

\[
\text{den diep blinden, Helmbreht} \\
\text{brähte ein stap und ein kneht} \\
\text{heim in sines vater hüs} \\
\text{er behielt in niht, er treip in ùz.}
\]

In classical MHG the last two couplets would not have been a pure rhyme.

Caution must be displayed in using rhymes to ascertain which

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63) Samuels 1965, 146f.
64) Wyld 1927, 171.
sounds were pronounced the same, since some rhymes are only rhymes to the eye, eye-rhymes, and not rhymes to the ear, e.g. in English, **love**: move, **pant**: want. This practice seems to have developed in the sixteenth century and thereafter. 66

It does not seem to have played a role in German versification. A peculiar feature of German rhymes is the practice of rhyming front rounded and front unrounded vowels: e.g. *mussen*, *wissen*. This originally started with poets from Saxony in the sixteenth and seventeenth centuries. Zesen lists *Elbe* and *gewölbe* as having the same vowel. This was for CG poets of the sixteenth century not an impure rhyme but reflected the unrounding of front unrounded vowels which can be seen in the modern dialects. However it spread as a poetic convention and was used by North German poets for whom it was an impure rhyme and established in German poetry. 67 It is even used in popular modern songs, e.g.

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Hinter den Kulissen von Paris
ist das Leben noch einmal so süß.
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Puns perform a similar task to rhymes. They indicate which words are considered to have the same pronunciation. The use of puns for reconstructing sound changes has chiefly been applied to English. No examples seem to exist in the history of German.

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66) Wrenn 1943, 34f.
67) Neumann 1920, 115f. (see 6.4).
Kökeritz cites many puns from Shakespeare, e.g. from *Romeo and Juliet*, Act. 3, Scene 5, 127ff. 69

When the sun sets, the earth doth drizzle dew
But for the sunset of my brother's sonne
It raines downright.

This is one of Shakespeare's most frequent puns. Another example is from *Henry VI Part 1*, Act 3, Scene 1, 51ff. 70

Winchester: *Rome* shall remedie this.
Warwick: *Roame* thither then.

This type of evidence, from rhymes and puns, can help us to ascertain which sounds were considered the same or different, but in the main it does not usually help us to establish more exact phonetic values for sounds.

69) Kökeritz 1953, 147.
70) Kökeritz 1953, 141.
4.7. COMPARATIVE AND NEOCOMPARATIVE EVIDENCE

Any European language that we study does not exist in a vacuum. It has dialects which have either been studied or are open to study by the linguist. Except in the case of Basque, there are European languages belonging to a definite language family, e.g., German to Germanic—other languages with which most European languages are related.

Penzl uses the adjective comparative to describe evidence of genetically related languages, and neocomparative for the evidence from the dialects of a language. 71

Comparative evidence is mostly used to reconstruct the oldest stage of the language or the proto-language from which it is descended. English has the interdental fricative [θ], thing, and it assumed that this is the original pronunciation, the other Germanic languages having changed it from a fricative to a voiced stop, German ding, or a voiceless stop, the Scandinavian languages except Icelandic, ting. This type of evidence is usually not as relevant for the reconstruction of MHG. For this we can lay more weight on the evidence of the present day dialects, that is, neocomparative evidence. Not all the dialects are of the same value in reconstructing MHG. Large sections of what is now the East Central German Dialect area were only just being settled in MHG times. 72 Literary MHG was mostly written by Upper Germans, Gottfried von Straßburg,

71) Penzl 1957, 199. "All diachronic interpretation implies a comparison, of course".

72) Mitzka 1944.
Hartmann von Aue, who probably came from present day Switzerland, Walther von der Vogelweide, who came from Austria and the East Franconian Wolfram von Eschenbach.\footnote{H. Moser 1957, 123f.} In MHG the digraphs \text{uo} and \text{ie} are used \text{gnot}, \text{miete} where in NHG we have long close monophthongs [u:], [i:]. In the UG dialects the words which were written with them in MHG are pronounced with diphthongs. It is assumed from this that the digraphs \text{uo} and \text{ie} and also \text{ue} represented diphthongs in MHG.\footnote{Paul/Mitzka 1959, 60.} However what was the exact phonetic representation of the diphthongs? Did \text{uo} represent [u:], or [u], as in present day Bavarian, or [ue] as in present day Alemannic? These questions are quite open. Some linguists assume that MHG \text{uo} literally represents [uo], and that the second component was unrounded and lowered or centralized in Bavarian.\footnote{Von Kienle 1960, para. 31.} Evidence from dialects is thus not free from problems.

Another example where dialects can help is in the reconstruction of the two short \text{e} phonemes of MHG. Although there is no distinction in writing some poets maintain a difference between MHG \text{/e/}, from Germanic \text{a} by \text{i} umlaut, and MHG \text{/e/}, from Germanic \text{e}, by not rhyming them. UG dialects and many CG dialects also keep a distinction between these two MHG phonemes.\footnote{Von Kienle ibid., para. 38.} The phoneme \text{/e/} is usually a close [e] and the phoneme \text{/e/} is usually a very open [æ], which in some dialects has been lowered to [a]. Since

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\begin{itemize}
  \item \text{73) H. Moser 1957, 123f.}
  \item \text{74) Paul/Mitzka 1959, 60.}
  \item \text{75) Von Kienle 1960, para. 51.}
  \item \text{76) Von Kienle ibid., para. 38.}
\end{itemize}
most dialects maintain a distinction between the reflexes of MHG /e/ and /ɛ/, and there is no evidence that they have resulted from a phonemic split, we can assume they were also distinct in MHG. In this case we find that CG can help in the reconstruction, as well as UG dialects.

In the Middle Ages many German settlers colonized areas in Eastern Europe and Italy. Some of the settlements eventually formed a continuation of the German speaking area, extending it eastwards from the Elbe. The dialects of Silesia and East and West Prussia would be examples of this. Other settlements were surrounded by speakers of other languages and formed what are known as speech islands. There were a great many of these up to 1945 in Eastern Europe. It is difficult to say how many exist today. Since the settlers who formed these speech islands originally came from their homelands at times which can be documented exactly, their speech may reflect the pronunciation of their home dialect from that time. Kranzmayer lays great stress on this. Well known examples are the speech islands in Northern Italy and Siebenbürgen in Romania. For instance, one of the pieces of evidence which is adduced for the pronunciation of OHG s as [ʃ] is that the speech island Gottschee has a [ʃ] pronunciation for OHG s, even initially before vowels. This

78) Kranzmayer 1956, para. 15.
79) Schwarz 1926, 16f.
type of evidence is not really different from that provided by other dialects, except that it may be less reliable because the speakers were frequently bi-lingual and were open to influences from the other language they spoke.

If we regard NHG as a 'dialect' which has achieved the status of a standard language, then it also is often taken as providing help in the reconstruction of MHG pronunciation. Mostly this takes the shape of assuming that if no change has taken place then we can assume that the phonetic value of a sound in NHG is the same as that for MHG. The NHG nasals m and n, bilabial and alveolar can on this basis safely be assumed for MHG. Similarly MHG sch can be assumed to have been pronounced in MHG as it is in NHG. This assumption is made in most historical phonologies of German but it is never made explicit. 80

The evidence from dialects is used very often in the reconstruction of MHG but it must be emphasized that we cannot simply project a particular pronunciation from a dialect on to MHG. The dialect itself, as well as the assumed MHG pronunciation, may have changed. Nevertheless the modern German dialects do give us phonetic values which, in many cases, are very close, if not identical, to those we reconstruct for MHG.

80) Paul/Mitzka 1959, para. 85, para. 114.
THE DEVELOPMENT FROM MIDDLE HIGH GERMAN TO NEW HIGH GERMAN: THE CONSONANTS

5.1 THE AFFRICATES

5.1.1 The development of MHG /pf/, /ts/ to the NHG clusters /p/ + /f/, /t/ + /s/

Most phonological descriptions of NHG recognize two affricates, [pf], spelt pf, and [ts], spelt z, tz and ts. Initially before vowels [ts] is spelt z, Zeit, medially after diphthongs it is spelt z, heizen, and after long vowels it is spelt both z, duzen, siezen, and ts, Lotse, Rätsel. Medially and finally after short vowels it is spelt tz, sitzen, Sitz and zz in Italian loans,Pizza. There is also a third affricate in NHG, [tʃ], e.g. Peitsche, which is usually considered to be a consonant cluster. Affricates are usually defined phonetically as a stop followed by a fricative at the same or similar point of articulation.\(^1\) By this definition [tʃ] would indeed be an affricate as it is in English.\(^2\) Historically, however, [ts] and [pf] came from single phonemes, Germanic t and p respectively, whereas [tʃ] has a different origin (see 5.1.3). In a traditional phonemic analysis the question arises as to whether [pf] and [ts] are unit phonemes, i.e. monophonematic,

\(^1\) Abercrombie 1967, 148; Martens 1961, 212.

\(^2\) Gimson 1962, 169; Kurath 1964, 44.
/pf/, /ts/, which adds two phonemes to the phonemic inventory, or whether they are clusters of already established phonemes, i.e. biphonematic, e.g. /t/ + /s/, /p/ + /f/, which would leave the number of phonemes the same. Linguists are divided on this question, some regard [pf] and [ts] as unit phonemes and some as clusters. Since historically they came from single sounds, it is probable that at one time they were monosegmental affricates. The question that is then posed, at least by those who regard them as bisegmental in NHG, is: when did they change from unit phonemes into clusters? For those linguists who assume that the [pf] and [ts] are unit phonemes in NHG the question does not, of course, arise. Traditional studies have never considered this to be a problem. They assume that the affricates have not changed from OHG to NHG, except for minor changes, e.g. after 1 and r OHG pf is simplified to f, OHG helpfan, MHG helfen. Moulton, however, assumes that NHG [ts] was at one time (he does not say when) a unit phoneme /ts/. Then by a phonemic change, which he calls fission, it becomes a sequence of two phonemes /t/ + /s/. Instrumental in bringing about this change was the loss

3) The following regard NHG [pf] and [ts] as clusters of two phonemes: Gerhardt 1950, 132-7; Morincieic 1958, 49-66; Moulton 1962, 24. There seem to be more linguists who regard NHG /pf/ and /ts/ as unit phonemes: Trubetzkoy 1939, 44 and 53; Hintze 1950, 83; Becker 1953, 253-8; Philipp 1970, 52. There is an account of the problem in Werner 1972, 50-55. Vennemann, 1968b, 226, regards the affricates as being derived from underlying /p,t,k/. In 1968a he regards them as monosegmental in initial position, but polysegmental elsewhere.

4) Wright 1907, paras. 251, 261.
of unstressed [a] before the ending -st. This meant that MHG wertes became NHG Worts where the sequence /ts/ was divided by a morpheme boundary between the stem Wert-and the ending -s. For Moulton this is a pointer to the fact that NHG [ts] may be analysed as /t/ + /s/, Through this change, fission, the unit phoneme /ts/ has been lost from the phoneme inventory.

This is similar to the way in which Penzl handles the diphthongization of MHG/i, iu, u/ He calls their diphthongization in NHG to /ai/, /oi/, /au/, diphonemization. This presupposes on his part the analysis of the diphthongs of NHG as clusters and not unit phonemes. If they are interpreted as single unit phonemes, then diphonemization has not taken place. This type of change is dealt with by Daniel Jones who calls it: 'Replacement of a sound by a sequence of two sounds'. He cites diphthongization in Old French of Latin short [i] to [jɛ], but he gives no examples of consonantal changes. He is cautious about the development but says that it was the introduction of [iɛ] from other sources which "caused the diphthongal iɛ of such a word as brief to become disyllabic". It is really a question of

5) Moulton 1967, 1399.
6) Penzl 1957, 197. Moulton 1967, 1400, although accepting the reinterpretation of MHG /ts/ as two phonemes /t/ + /s/, he does not accept NHG diphthongization as an example of fission, since the Polivanov factor, another phonetic change, did not bring about any reinterpretation of the diphthongs as sequences of two sounds.
7) Jones 1962, 246.
phonemic interpretation whether a phonetic sequence or segment is to be viewed as one phoneme or two. A decision that the affricates or diphthongs in NHG are unit phonemes removes the question of when their development from unit phonemes to clusters was completed. It is significant that terms such as affrication, diphthongization are phonetic rather than phonemic terms. Penzl is right when he says that diphonemization "resembles a phonemic shift". In 2.2 we pointed out that a phonemic shift is, in fact, not really a change in the number of phonemic units, but rather of their distinctive features. However, for those linguists who assume that NHG [ts] is bisegmental, then the change of /ts/ to /t/ + /s/ means the loss of the affricate /ts/ from the phonemic inventory.

As far as NHG [pf] is concerned, neither Moulton nor any one else deals with its parallel development from a unit phoneme /pf/ to cluster /p/ + /f/. Moulton regards it as /p/ + /f/, since there are other consonant clusters with /p/ as first member. He could have strengthened his argument by saying that /p/ and /f/ also occur separated by a morpheme boundary, as in *Abfall*, *Abfahrt*. Due to the fact that these forms were abeval, abevart in MHG, he could have further assumed, as in the change of /ts/ to /t/ + /s/, that the loss of unstressed [a] changed the unit phoneme /pf/ to the cluster /p/ + /f/, since now they

8) Penzl 1957, 197.
were separated by a morpheme boundary. If we can postulate a fission of MHG /ts/ to /t/ + /s/, then we can also postulate the development of MHG /pf/ to /p/ + /f/. Again there is a subtraction from the phoneme inventory.

The change from a unit phoneme to cluster may be justified on phonemic grounds: but the question arises whether it is supported by any phonetic evidence. In colloquial speech there is no phonetic difference between [ts] in Sitz or Zeit, and [ts] in rätst or lädst. As far as NHG [pf] is concerned there is also no phonetic distinction in colloquial speech between the [pf] in Apfel and the [pf] in Abfall. Siebs, however, says that when [pf] is a 'feste Lautverbindung', then the [p] is not aspirated, but when the sequence [pf] results from the juxtaposition of two consonants, as in abfahren, then the [p] is to be aspirated. But he has to admit that in colloquial speech the first of two consonants is sometimes not properly released, and presumably, although he does mention this, it is not aspirated. He continues: "am ersten ist eine solche Aussprache zu dulden, wo durch den Zusammenstoß in der Wortzusammensetzung oder der Wortfolge ähnliche Lautgruppen wie pf, ts, tf, ks entstehen, also: abfahren ..."\(^{10}\) The aspiration of the prefix ab before another consonant is not demanded by the Wörterbuch der Deutschen Aussprache: "Die Verschlusslaute werden (meistens) nicht behaucht: ...2. vor folgenden Konsonanten, z.B. absorbieren ..."\(^{11}\) Duden Grammatik gives detailed rules for the

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10) Siebs 1958, 77f.

11) WDA, 45.
aspiration or non-aspiration of stops. It prescribes non-aspiration of ab- before labial stops, ab Bonn, abpressen, and aspiration before the affricate [pf], or the clusters [ps], abpiff, Lobpsalm, and aspiration in all other cases, absetzen, Abgang. There is unfortunately no example with ab before [f] but it seems likely that Duden would require aspiration here. This of course would be in line with Siebs.

It is impossible to understand exactly what happens in the 'gemäßigte Hochlautung' and 'Nicht-hochlautung' since there are no examples of ab before [f]. The previous edition of Duden Grammatik, however, states quite clearly that the [p] in Apfel and Abfall are different. Of the latter it says: "Ist in pf ... zwischen dem ersten Teil und dem zweiten Teil eine Silbengrenze / also p/f ..., so spricht man p ... unbehaucht." It mentions later that it is a characteristic of colloquial speech that aspiration is weakened or lost. The syllable boundary can be moved: "Abfall HS ap/fal, US a/pfal (wie in Apfel a/pfal)". Although Wardale gives only the examples Abmarsch and abwenden of ab before labial sounds, he says that a stop, when it precedes a homorganic fricative, becomes unaspirated. By implication, this loss of aspiration would apply to [p] before [f] examples like Abfall.

12) Duden Grammatik 1966, 47.
13) Duden Grammatik 1959, 34.
14) Duden Grammatik 1959, 38. HS = Hochsprache, US = Umgangssprache
It has been necessary to explain in detail that the affricate [pf] and the cluster [p + f] are pronounced the same in all but the most formal spoken German in order to emphasize the point that the change of unit phoneme /pf/ to a cluster /p/ + /f/ is really a question posed by a phonemic analysis of the affricates as clusters, rather than by an actual phonetic change. The aspiration demanded for the standard probably only existed in a declamatory style. The affricates [pf], and [ts], have therefore undergone no real phonetic change since MHG.

5.1.2 Changes in the distribution and incidence of MHG /pf/ and /ts/

In NHG the affricate /pf/ occurs initially before vowels, Pferd, Pfad, and before /l/ and /r/, pflügen, Pfründe. Medially and finally it only occurs after short vowels and /m/: klopfen, kampfen, Kopf, Kampf, with the exception of the one word Karpfen, where it occurs after /s/. In MHG, /pf/ occurred medially and finally after /r/ in the following words: MHG scharpf, harpf, karpf and also after /l/ in the word gelpf. All these words had variants with f in MHG except for karpfe which had a variant with e, karpe. The MHG gelpf, which was both an adjective, "shining", and a noun, "noise, insolence", and the related verb gelpfen have died out in NHG. This has changed the distribution of /pf/ in NHG, since apart from the one word Karpfen, it no longer

16) Lexer 1876, II. Paul/Moser/Schröbler 1969, para. 87. In MHG both pf and ph are used for the labial affricate.
occurs after /l/ and /r/. Phonetically this change of [pf] to [f] represents a simplification of the affricate to a fricative. This change had begun in late OHG when, again after /l/ and /r/, OHG [pf] became simplified to [f], OHG helpfan, MHG helfen.\(^17\)

This did not produce a new cluster since in NHG /lf/ has also come from Germanic /lv, as in Wolf cf. MHG wulven, or the sequence /l/ + vowel + /f/, NHG Schilf, OHG skiluf, NHG elf, OHG einlif. This change is a conditioned merger which changes the distribution of /pf/. It now no longer occurs medially and finally after /l/ and /r/. Paul assumes that the occurrence of /pf/ after /l/ and /r/ in MHG scharpf, harpfe, gelpf is due to the fact that these words originally contained a geminate /p/ which was always shifted to the affricate,\(^18\) cf. English apple, NHG Apfel, whereas single /p/ is shifted to /f/, English open, NHG offen.

This assumption of /pp/ in these words is unnecessary. Since it only involved a change in the distribution of /pf/, it is quite plausible to suppose that individual words developed variants, one form with /pf/ and the other with /f/. In this case the spelling is a bad guide to pronunciation, since even in NHG in North German and ECG colloquial speech initial /pf/ is often pronounced /f/.\(^19\)

The lay informants of the DSA often write /pf/ when, according to dialect studies, they would use [f] for forms such as Pfund in ECG.\(^20\) For them the spelling /pf/ can be regarded as [f]. This

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17) Braune/Mitzka 1961, para. 31, Anm. 5.
20) Deutscher Sprachatlas (DSA), Map 62 Pfund.
could be the case with MHG scharpf, harpfe, karpfe, and selpf. The spelling pf or ph does not preclude the simplification in pronunciation of [pf] to [f] having already taken place in some regions, since this change may not be reflected in spelling until later. It seems that in MHG scharpf and scharf were geographical variants, scharpf being UG and scharf CG. The form Karpfen still remains to be explained. In MHG this had a variant with p, karpe. It is a Latin loan word and Goethe still has the form Karpen. The spelling with pf established itself later.

The substitution of /f/ for /pf/ in initial position has taken place in two words in NHG. This has not changed the distribution of MHG /pf/, only its incidence. NHG Flaum 'down', and fauchen 'spit, puff' had the forms pflüme and pfüchen in MHG. The selection of the form with /f/ in the case of NHG Flaum made clear the distinction, at least in writing, between Flaum and Pflaume 'plum'. In MHG these two words were homonyms. In speech, however, this could lead to misunderstandings. Many school-children in North German have wondered how to interpret Morike's line: O flaumenleichte Zeit der dunkeln Frühne. There seems no obvious reason for the selection of /f/ in fauchen.

Another change in the distribution of MHG /pf/ concerns only onomatopoetic words. In MHG /pf/ is found forming an initial

22) Paul ibid., para. 155.
23) Morike I, 15.
cluster with /t/ in words which render the sound of heavy breathing, wheezing or similar sounds, *phnäsen, phnaet, phnehen, phnuht, phnesten, phnurren, phnust, phnuten*. This combination is no longer possible in NHG. No information seems to exist as to when, how and why it died out.

The NHG affricate [ts] has a slightly different distribution. Initially it occurs before vowels and /w/: *Zeit, zwei*, medially and finally it occurs chiefly after short vowels, diphthongs and /l, r/ and /ŋ/: *siten, reizen, schmelzen, Schmerzen, blinzeln, Sitz, Reiz, schmilz, Schmerz, ganz*. Medially it also occurs after /ch, jauchzen, "schzen*. Medially after long vowels it also occurs in a few words: *Brezel, duzen, Flöze 'strata', Lotse, Rätsel, siezen*. Of these examples only *Brezel* and *duzen* occurred in MHG, the latter being obviously morphologically related to *du*. It is not clear why *Brezel* should have also been an exception in NHG. Perhaps -zel was regarded as a diminutive ending. At all events it seems that the occurrence of a long vowel before [ts] has become more prevalent in NHG, but it is still not frequent. *Lotse* and *siezzen* are first recorded in the seventeenth century. *Flöze* pl. *Flöze*, is a technical mining

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24) Lexer 1876, II, 259. Some words were recorded in Netzer, Sehrt 1962, 56.

25) Kluge/Mitzka, Brezel 99, duzen 150.

26) Duden Etymologisches Wörterbuch (DE), Lotse 447, siezen 642. The use of *Sie* as a polite pronoun of address dates from the seventeenth century, Lockwood 1968, 62.
Ill word, which is first recorded in the sixteenth century. Rätsel is not recorded until the late fifteenth century and its use by Luther furthered its selection over geographical rivals like UG Ratersch. Since it is not recorded earlier, it may be assumed to go back to an unrecorded OHG *räthisila, the ts being the result of the loss of unstressed OHG -i-, MHG -e-. Another word which is quoted with a long vowel before NHG [ts] is flözen. Paul says that this is etymologically the same word as flößen.

In MHG there are many other cases of verbs with an affricate or fricative in variation. Sometimes the standard has selected the form with the affricate, beizen, reizen, and sometimes the form with the fricative, büßen, grüßen. In the case of flözen and flößen these variants have become distinguished in meaning.

This distinction which Paul makes between them is accepted by Götze. These two would seem to be the only people to make this distinction. Most recent dictionaries do not recognize the form flözen. If there was a distinction between them then this existed either as pedantic attempt to differentiate between the two words or only for a short time. Modern German certainly does not seem to distinguish between them. In MHG the doublets

27) Kluge/Mitzka 209.
28) Kluge/Mitzka 584; DE 552.
30) Trübners Deutsche Wörterbuch 2, 393.
31) Wörterbuch der deutschen Gegenwartssprache (WDGS), 2, 1325; Jones 1967, 2, 76.
sprüzen, with fricative and sprüzen, with affricate existed.

In NHG the form with the affricate has been selected, spreizen.\textsuperscript{32}

NHG geizen goes back to MHG ðitesen. In NHG the affricate [ts] has resulted from the loss of medial unstressed -e-.\textsuperscript{33} (These changes are minor changes in the incidence of MHG /ts/) When NHG [ts] appears medially after fricatives this is usually in the verbal suffix -zen, "schzen, seufzen, schluchzen. This cluster chz probably did not exist in MHG, but came about by the loss of medial -e-, MHG jüchezen, NHG jauchzen. The resultant clusters with the affricate z are new in NHG and have increased freedom of distribution of z.\textsuperscript{34} In some cases, however, these verbs underwent assimilative changes. This applies to those verbs whose stem ended in a velar stop, e.g. MHG blinkezen. After the loss of the -e- the cluster [kts] was reduced to the affricate [ts], NHG blitzen. This also happened in the case of NHG schmatzen, related to schmecken. If the stem ended in nk, then the k was lost but the n remained, MHG blinkezen, NHG blinzen.\textsuperscript{35} The cluster ks does exist in NHG verbs, drucksen, klecksen, but these are later formations.\textsuperscript{36}

\textsuperscript{32} Kluge/Mitzka 731.

\textsuperscript{33} Paul ibid., para. 215.

\textsuperscript{34} The cluster chz may have existed in MHG. Lexer 1872, I, 18, gives one example of a verb containing it, e.g. "schzen. The change from MHG siuften to NHG sîzen is a morphological one, whereby -ten has been replaced by the morpheme -zen. Kluge/Mitzka 706.

\textsuperscript{35} Paul 1920, V, para. 87.

\textsuperscript{36} Kluge/Mitzka, drucksen 144, klecksen 374.
5.1.3 The emergence of the affricate [ʦ] in NHG

The third affricate in NHG [ʦ], which is regarded not as a unit phoneme but as a cluster of /t/ + /s/, has a more restricted distribution. 37 It is spelt tsch and occurs initially before vowels, but only in proper names, Tscheche, and medially and finally after both long and short vowels and diphthongs: Bratsche, fletschen, Peitsche. Initially it is spelt c in the words Cello and Cembalo, 'harpsichord'. Historically medial tsch goes back to MHG, /ts/, tz in native words, MHG vletzen, NHG fletschen. The change from MHG /ts/ to NHG [ʦ] is not a regular sound change. Paul comments: "Unklar bleiben noch die Bedingungen, unter denen sich tsch aus z entwickelt hat, wie denn auch in anderen Fällen der Ursprung dieser Lautgruppe unaufgeklärt ist". 38 This has not happened to every NHG medial tz, MHG, NHG sitzen. It would seem that Fleischer is the only linguist to have seriously considered this question and presented a phonemic situation. He assumes that originally [ʦ] was a stylistic variant of [ʦ] in expressive or onomatopoeic words which has become a separate phoneme in NHG. 39 The affricates [ʦ] and [ʦ] are in variation in some present day German dialects. In OHG the sequence tsch did not exist and even in MHG it seems to have been infrequent. One of its first occurrences is in the word

tiutsch where ț and sch have become juxtaposed because of the loss of an unstressed vowel, cf. OHG diutisk. Sometimes in MHG this cluster is simplified to sch, tiusche. This seems to be the earliest example of tsch. During the MHG period and thereafter the incidence of tsch increased due to the introduction of Slavonic loan words such as Kutscher, Peitsche, and LG loans like quatschen. The word Gletscher is of Romance origin and was borrowed from the Alemannic dialects in the seventeenth century. Italian loan words provided [tʃ] in initial position, Cello, Cembalo. In MHG French loan words are also spelt tsch in initial position, tschapel, tschevalier, but they also have variants with initial sch, schapel, schevalier. These doublets have been interpreted to show that Old French initial [tʃ] was changing to [ʃ] at this time. None of these words has survived in NHG with initial tsch. The word for 'joust' has a variety of forms in MHG, schuste, tjoste. The spelling ț for Old French [dʒ] seems to be limited to this word, but again it has not survived into NHG. French loans could have provided

40) Deutsches Wörterbuch (Dt. Wb.) 5, 2885.
41) R. Müller 1966.
42) Dt. Wb. 7, 2333.
43) Dt. Wb. 4, 8336.
44) Cello DE 93 18th/19th century, Cembalo, also 19th century, Maurer-Stroh 2, 482.
45) Lexer 1876, II, 659, 715.
46) Nyrop 1914, I, para. 402.
47) Lexer 1876, II, 1451.
the source for initial tsch, but they did not do so. During the late MHG period the sequence tsch did exist and it has been increased. Some proper names had variants with tsch, Fritsche.\textsuperscript{48}

In onomatapoeic words the [\textit{ts}] which had merely been a variant of [\textit{ts}] now found written expression since the affricate [\textit{t\textonehalf{s}}], tsch already occurred in the language, e.g. blietsch-plob.

In NHG there are many onomatapoeic words with medial tsch which came from MHG /ts/, tz. The incidence of tsch has been increased in recent times by more than loan words, and the sequences /ts/ and /t\textonehalf{s}/ are now distinguished by a number of minimal pairs, e.g. Kitz : Kitsch, Putz : Putsch, putzen : putschen.\textsuperscript{49} The emergence of the sequence [\textit{t\textonehalf{s}}] seems to have been a cumulative process starting with the creation of MHG diutsch. It has been supplemented by loan words and by the phonemicizing of [\textit{t\textonehalf{s}}], the stylistic variant of [\textit{ts}], in onomatapoeic words.

In NHG there are also a few words beginning with [d\textonehalf{s}] spelt dsch. However they are all of recent origin, Dschungel, Dschunke, which was earlier written Juncke,\textsuperscript{50} and Dschodpur. The affricate [d\textonehalf{s}] also occurs in English loans, where it is spelt j, Jazz, Jeep, Jockey. The words Jazz and Jockey have alternative pronunciations with [\textit{j}].\textsuperscript{51} In colloquial speech [\textit{t\textonehalf{s}}] is usually substituted for [d\textonehalf{s}], which is only found in these loan words.

\textsuperscript{48} Fleischer 1959, 303-322.
\textsuperscript{49} Fleischer 1966, 91ff.
\textsuperscript{50} Dschungel, Dschunke Kluge/Mitzka 145.
\textsuperscript{51} WDA 304, 305.
5.2 THE STOPS

5.2.1 The change in the articulation of the initial stops

The description of the development of the system of stops in German is complicated by the use of many phonetic terms to describe their articulation: voiced : voiceless, lenis : fortis, tenuis : media, aspirated, and also by the fact that these articulations vary according to their position in the word.

Phonemically in NHG there are three points of articulation for the stops: labial, alveolar and palatovelar, and for each of these points of articulation there is, in the standard language, an opposition between a voiced and voiceless stop: dir : Tier, leiden : leiten, Bein : Pein, rauben : Raupen, Gunst : Kunst, lagen : Laken.

In final position there is no such distinction and the resultant sound is regarded as voiceless, [laet], Leid. This final devoicing, which also affects fricatives, was rendered in NHG normalized orthography by writing the final sound with the corresponding voiceless symbol: leit, leides, tac, tages, wip, wibes. The NHG spelling

1) Vißtor 1904, para. 74; Bithell 1952; Werner 1972, 44-46. Ezawa 1969, 115 says that the features fortis and lenis have no acoustic correlates: "In spektrographischen Darstellungen kommen den Eigenschaften fortis/lenis keine eigenen Züge zu, während die Stimmhaftigkeit und Behauchung jeweils als solche erkennbar sind und sich dabei phänomenal ausschließen".

2) This useful term has been taken over from Keller 1961, 175, to designate a phoneme whose point of articulation varies from palatal to velar according to the preceding vowel.

3) This is not always so consistent in manuscripts, Paul/Moser/Schröbler 1969, para. 88. "Die "Auslautverhärtung" des normalisierten Nhd, zeigen die Handscriften weithin nicht":
of the nominative, Tag, Leid, Weib with the same symbol as in medial position, e.g. Tages, Leides, Weibes, is the result of the principle enunciated by many grammarians, including Gottsched, that the spelling of word forms should be uniform. This difference between MHG and NHG is merely one of spelling and does not reflect any change in pronunciation. Where a phonemic distinction of voice or intensity does occur finally, as in Alemannic dialects or Yiddish, it is regarded as being a secondary development.

The prescribed pronunciation for NHG initial /p, t, k/ is that they should be aspirated, and that initial /b, d, g/ should be voiced. This rule, however, does not represent normal colloquial pronunciation, particularly in Central and Southern Germany, Austria and Switzerland, where /p, t, k/ are not aspirated and where /b, d, g/ are unvoiced. They are usually said to oppose each other as fortis : lenis or hart : weich, which is probably how they were distinguished in MHG if we reconstruct the pronunciation on the basis of UG. What we have is not so much a phonetic change but rather a change of linguistic model, whereby the prestige pronunciation of one area has supplanted that of

4) Gottsched 86.
6) Siebs 1958, 76f.
7) Luick 1923, para. 50f.; Boesch 1957, 30f. is not clear on this point, WDA, 67f.
another area. When *Das Mimische Deutsch* was set up as the best model to be imitated, the two series of consonants were probably distinguished fortis : lenis, but with the decline in prestige of Saxony and the rise of Prussia and furthermore the rise of Berlin as the centre of German life, the North German model of pronunciation came to be regarded as the prestige model. When High German extended its area into Low German speaking areas from the sixteenth century onwards, the Low German speakers acquiring High German, at first as a written language, when it was read and used formally, in church, in law courts and increasingly on a colloquial level, pronounced the letters with Low German pronunciation. The Low German initial voiceless stops were aspirated and initial *b*, *d*, *g* were voiced, so that this became the model pronunciation which Siebs and others recommended when a standard pronunciation, at first for the stage, and later for more general use, was set up.

5.2.2 Changes in the incidence of stops

Between the phonemic system of stops initially and medially in MHG and the corresponding system in NHG there has been no change in the number of units or their distribution. There have, however,

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8) Eichler, Bergmann 1967, 41; Vietor 1904 para. 74, Anm. 5, comments that: "der hochdeutsche Süden (einschließlich Mitteldeutschlands) die Wortformen - oder, wenn man will die Sprache -, der niederdeutsche Norden die Lautinterpretation - die Aussprache - liefert".

9) Kirch 1952, para. 97; Gernentz 1964, 128ff.
been considerable changes in their lexical incidence. Some words with initial /b/ in MHG have /p/ in NHG, MHG *beh*, NHG *Pech*.

There is a considerable interchange between the reflexes of initial MHG /t/ and /d/. Many words which in MHG had initial /t/ have /d/ in NHG, MHG *tump*, NHG *dumm*. A smaller class of words which had /t/ medially in MHG have /d/ in NHG, e.g. MHG *dulten*, NHG *dulden*. Another small group of words which in MHG had initial /d/ have /t/ in NHG, e.g. MHG *dön*, NHG *Ton* 'sound'.

These changes have not affected the phonemic system as such but only individual words. In every case the changes are reflected in spelling. This interchange between voiced and voiceless stops has been most frequent in initial position before vowels. It has most affected MHG /t/ and /d/, /b/ and /p/ to a lesser extent, and /g/ and /k/ not at all. The chief example of these changes are given in the following lists:

<table>
<thead>
<tr>
<th>MHG</th>
<th>NHG</th>
</tr>
</thead>
<tbody>
<tr>
<td>tubel</td>
<td>Döbel 'dowel'</td>
</tr>
<tr>
<td>tam</td>
<td>Damm</td>
</tr>
<tr>
<td>teich</td>
<td>Deich</td>
</tr>
<tr>
<td>tengeln</td>
<td>dengeln 'to whet'</td>
</tr>
<tr>
<td>tolde</td>
<td>Dolde 'umbel(bot.)'</td>
</tr>
<tr>
<td>tuft</td>
<td>Duft</td>
</tr>
<tr>
<td>tunkel</td>
<td>dunkel</td>
</tr>
<tr>
<td>tump</td>
<td>dummm</td>
</tr>
</tbody>
</table>

10) Von Bahder 1890, 239f.
<table>
<thead>
<tr>
<th>MHG</th>
<th>NHG</th>
<th>MHG</th>
<th>NHG</th>
</tr>
</thead>
<tbody>
<tr>
<td>täht</td>
<td>Docht</td>
<td>toter</td>
<td>Dotter</td>
</tr>
<tr>
<td>till</td>
<td>Dill</td>
<td>tihten</td>
<td>dichten</td>
</tr>
<tr>
<td>tāhele</td>
<td>Dohle 'jackdaw'</td>
<td>tucken</td>
<td>ducken 'to stoop'</td>
</tr>
<tr>
<td>tunst</td>
<td>Dunst</td>
<td>tutzen</td>
<td>Dutzend</td>
</tr>
<tr>
<td>tolmetscher</td>
<td>Dolmetscher</td>
<td>türen</td>
<td>dauern</td>
</tr>
<tr>
<td>trache</td>
<td>Drache</td>
<td>trut</td>
<td>Drude 'witch'</td>
</tr>
</tbody>
</table>

The following are the main examples of MHG /t/ corresponding NHG /d/ medially:

dulten   | dulden   | geltes   | geldes   |
milte     | milde    | multe    | Mulde 'trough' |
schiltes  | Schildes | bortes   | Bortes   |
kleinotes | Kleinodes | rietes  | Riedes   |

The following are examples of MHG /d/ corresponding to NHG /t/:

MHG       | NHG       |
|-----------|-----------|
dōsen     | tosen     |
dōn       | Ton 'sound' |
dorpmere  | Tölpel    |
drum 'end piece' | Trümmer |

The correspondence, MHG /b/ : NHG /p/, is represented by the following examples:11

MHG       | NHG       | MHG       | NHG       |
|-----------|-----------|-----------|-----------|
bābest    | Papst     | bükke    | Pauke     |
beh       | Pech      | bicken    | picken    |

11) Von Bahder ibid., 224ff.
Many of these examples are loan words and are recorded with /b/ and /p/ in MHG. The initial /d/ in the loan words Dutzend, doppelt, Dolmetscher, dauern 'to last', Deus, Dom, dichten, Drache are probably due to their initial d in the original languages, e.g. Latin dictare, durare. The traditional interpretation of this interchange has been that these words (excluding the loan words) are either borrowings from LG, where they represent forms which have not undergone the High German shift of initial Germanic d to t, or else they are borrowings from dialects where MHG initial /t/ and /d/ are 'confused'. Thus the initial alveolar stop could represent either /t/ or /d/. The interchange of the reflexes of initial MHG /b/ and /p/ is probably also due to the dialects which did not distinguish between initial /b/ and /p/. Again there are loan words among the words where MHG /b/ corresponds to NHG /p/, and these may be due to p in the original language, e.g. Latin papa, predicâre. The writing of p for MHG initial /b/ occurs most often in CG

12) Paul/Moser/Schröbler 1969, para. 87, Anm. 3.
14) Karstien 1939, 127; Von Bahder ibid., 241; Wright 1907, para. 266.
texts. From here the forms found their way into the standard. Some words which were written with initial p in Early NHG were not selected, e.g. püsch, pauer. In present North German speech the word Buckel 'back' is nearly always pronounced [pükel].

These suggestions were made before the detailed work on German consonants by Lessiak and before the advent of the phoneme principle. For this 'confusion' Lessiak coined the term 'binnendeutsche Konsonantenschwächung' which he defines as "den Übergang von ursprünglicher Fortis in stimmlose Lenis oder Halbfortis ... Alle Mundarten, die an der hd. Konsonantenschwächung teilhaben, kennen nur stimmlose Verschlußlauten und mit einigen Mittelbairischen Ausnahmen auch nur stimmlose Reibelaute". Phonemically this has resulted in "the complete coalescence of the fortis and lenis stop series", or, to put it another way, "la perte de l'opposition forte - douce". This complete merger of the two series of stops can be seen in all CG dialects except Silesian and North Thuringian in the East, and Ripuarian and Moselle Franconian in the west. It occurs in UG except for South Bavarian and

15) Von Bahder ibid., 225.
16) Paul ibid., para. 139.
17) Lessiak 1933, 13.
19) Philipp 1965, 284ff.
High Alemannic. This is an important restructuring of the whole consonant system and must be examined in detail. Firstly, it only occurs initially and medially since a coalescence in final position occurs in nearly all dialects and has been accepted by the standard language. Secondly, the only real opposition affected is that between the reflexes of MHG /t/ and /d/. Although there is an opposition initially between /b/ and /p/ in MHG, it is of a low functional yield since /p/ mostly occurs in loan words. Before vowels there is no merger of the reflexes of MHG /g/ and /k/, although this does happen before /l/ and /r/ and intervocally. Thirdly, in medial position coalescence is avoided in some dialects by the reflexes of the MHG lenis or voiced stops in the labial and velar series becoming fricatives. This is in fact a push-chain, the MHG long intervocalic fortis stops become single lenis stops and the single lenis stops become fricatives. This can be diagrammed as follows:

\[
\text{MHG } /-\text{pp}-/ > /-\text{b}-/, /-\text{b}-/ > /-\text{v}-/, \text{ MHG } /-\text{kk}-/ > /-\text{g}-/, /-\text{g}-/ > /-\text{\&}-/.\]

There is a similar push-chain in the development of the Western Romance languages. In the alveolar series there is usually

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20) Lessiak ibid., 13.
22) Philipp 1965, 289ff. This is rejected by Lessiak 1933, 23.
23) Lausberg 1956, II, para. 492; Weinrich 1958, 158, regards the degemination as the factor which phonemesizes the 'weak' variants of Latin b, d, g.
no push-chain since MHG /-tt-/ and /-d-/ merge.

Structurally the "Konsonantenschwäcchung" or consonant lenition does not seem to be as revolutionary in its effects as perhaps might be supposed, but it has spread over a wide area. Why was it not then accepted into the standard language but left only traces in the shape of the interchange between MHG /t/ and /d/ and /b/ and /p/? The answer seems to be twofold. Firstly, written records have always maintained a strict separation of voiced and unvoiced consonants in all parts of Germany, and secondly, the age of the consonant lenition does not seem to have been established. The date suggested for its commencement varies from OHG to 1300. The writing of Germanic b, d, g as e, t, k in the UG dialects of OHG and then later as b, d, g again is regarded as showing that the consonant lenition may have begun even in OHG. But, as Penzl points out, this does not represent a merger of the voiced and voiceless stops since such an opposition initially at any rate, did not exist to any great extent. The Germanic voiceless stops had become affricates initially in OHG. Even Germanic k was always written ch and not k. OHG initial p only appeared in loan words. There is only really a coalescence of Germanic b and d. Lessiak gives no clues as to the date of the consonant lenition, except to say

24) V. Moser 1951, para. 137; 8, para. 142, 3; para. 148, 9.
25) Paul/Mitzka 1959, para. 64; Von Kienle 1960, para. 82.
26) Braune/Mitzka 1961, para. 88, Anm. 3.
27) Penzl 1971, 164.
that it can be found in two groups of dialects: Central and Northern Bavarian, where geminates are not weakened, and in another group comprising Low Alemannic, and all of CG except Silesian, North Thuringian, Ripuarian and Moselle Franconian. Building on this assumption, Kranzmayer separates the development in Bavarian from the 'binnendeutsche Konsonantenschwächung' proper. He dates the Bavarian consonant lenition about 1300. The picture, as it can be reconstructed from V. Moser, shows some variation: \( t > \tilde{d} \) initially is quite frequent in Low Alemannic in the fourteenth and fifteenth century and the \( \tilde{d} \) spellings spread to East Franconian and ECG in the sixteenth century. According to Philipp, however, the consonant lenition had not taken place, intervocalically at least, in Low Alemannic in the late fifteenth century. This seems to contradict V. Moser's picture. The answer may well be that the lenition took place at different times in different places in the word. V. Moser deals with initial lenition, whereas Philipp deals with intervocalic lenition. In UG texts of MHG there is a fluctuation in spelling between \( b \) and \( p \) and \( t \) in a number of words but there seems to be no wholesale coalescence in spelling. This is also true of ECG records where the fluctuations are fewer.

28) Lessiak 1933, 19.
29) Kranzmayer 1956, para. 34c.
30) V. Moser 1951, 143, 1 a.x.
31) Philipp 1968, 209f.
33) V. Moser ibid., para. 143.
In Early NHG it seems that \( t \) for \( d \) is only used in a small number of words, as is the case of \( d \) for \( t \), but this latter change is not recorded till the sixteenth century in High Alemannic and from the fourteenth and fifteenth centuries in Low Alemannic.\(^{34}\) The Early NHG grammarians of all areas continually distinguish between fortis and lenis consonants: KolroB, from the Alemannic region says: "Zu dem vierden solt du dich verhiuten/das du nit b fur p oder och d fur t schrybet/ Sunder ein yedes nach syner wurckung/diewyl b und d lyB und lind/oder gantz sanft/dargegen p und t starck ir ubspreen hand".\(^{35}\) Frangk from Central Germany says: "Darumb das sie einander vast ehnlichenn/Aber bey der Schwachheit und sterck/ einer fur den andern erkant wird/Odder/an der gelindheit und scherpff allein unterschieden sein/Also/w.b.p./d.t/v.f.ph/ch.g.kck".\(^{36}\) Peter Jordan from Mainz comments "... yedoch das p ist harter dann das b ... und so man den athem mit gewalt herrauB truckt wirts eyn t/ so mann aber lind truckt/ wirts ein d".\(^{37}\) Finally the East Franconian Ickelsamer says: "Das /b/ und /p/ sein auch gleich/ allain das /p/ herter ist dann das /b/ Also auch das /t/ dann das /d/".\(^{38}\)

These representative quotations show that \( p \) and \( b, t \) and \( d \) are

34) V. Moser ibid., para. 142, 1 b.x.
35) Müller 1882, 74.
36) Müller ibid., 107.
37) Müller ibid., 114.
38) Müller ibid., 130.
considered to be different, and without more conclusive evidence it can be said that the consonant lenition had not yet taken place in the educated speech of most regions by the sixteenth century. We cannot, however, exclude the possibility that it had taken place in colloquial speech and the grammarians are prescribing a difference between p and b and t and d because there is a difference in spelling. The clearest indication of a date by which the consonant lenition had taken place is provided by the letter published by Gottsched as an example of the worst type of Leipzig speech. Gottsched chooses to show this by using the symbols for the voiceless sounds for voiced sounds: e.g. *pissgen, NHG bischen, Bruter, NHG Bruder, Malate*, NHG malade, *trüben, NHG drüben, kesund, NHG gesund*, but before vowels d is nearly always used, *daud, der*. His use of symbols is not consistent but sufficient to show that voiced and voiceless consonants had probably merged, and an attempt to try and distinguish them in writing leads to wholesale confusion of the two sets of signs. It is hard not to think that if the consonant lenition had taken place earlier more confusion of the symbols for the voiced and voiceless stops would have taken place in the standard. There are other contemporary references to speakers confusing b and p and d and t and Gottsched’s letter is not an isolated example.


40) Becker/Bergmann ibid., 149f.
From the very first time that High German was used in Berlin initial MHG /d/ and /t/ were not distinguished. This characteristic of the written language of Berlin reflected the spoken form of High German which was used in Berlin. This variety of High German which was used by the population of Berlin was Upper Saxon, and it has been suggested that the consonant lenition must have been present in the variety of Upper Saxon which was taken over by speakers in Berlin. The date of the first use of High German in Berlin was about 1500. Therefore in Upper Saxon at least the consonant lenition had taken place by this date. This pronunciation is reflected in some informal letters in such forms as deuffel, dochter, Disch, but not in official records.\(^41\) This then is the possible evidence for consonant lenition in Upper Saxon in the sixteenth century.

Whatever the exact date of its inception, and it seems unlikely to be before the sixteenth century, the type of speech containing the consonant lenition seems to have been branded as uneducated, even by the eighteenth century probably because it did not reflect the spelling of the written standard. The words with the interchange of b and d and those containing p for MHG b are isolated cases of hypercorrect forms which slipped into the standard and were not rejected.\(^42\) The native words which have been affected in the interchange between MHG t and NHG d are mainly words connected with domestic or rural life. Apart from

\(^{41}\) Lasch 1928, 249, 79f.

\(^{42}\) Hitzka 1957, 231-238.
dunkel and dumm, which are adjectives, and dengeln, ducken, which are verbs, they are all nouns. In nearly every case it is difficult to say why these particular words and not others found their way into the standard.

Gottsched quotes examples of words with both initial ֧ and initial ֝: "tocken oder Docken, docht oder Tocht", and in some cases he tries to differentiate them semantically: "dauen wenn das Eis schmilzt, thauen auf der Straße, tichten, sinnen, dichten fingere", but neither of these attempts at semantic differentiation have been accepted. Goethe, although he allows himself to use rhymes with ֝ and ֧: e.g. Faust I: lines 218-221,

Was hilft es viel von Stimmung reden?
Dem Zaudernden erscheint sie nie,
Gebt ihr euch einmal für Poeten,
So commandiert die Poesie.

is strict in demanding actors to distinguish between ֝ and ֧. The cause and effect are difficult to untangle here: did the consonant lenition arise too late to have any real effect on the standard language, which carefully maintained the distinction between voiced and voiceless stops? Or was the consonant lenition early in speech but not reflected in writing, which artificially kept the distinction alive until it was taken over

43) Gottsched 145, 118.
45) Goethe ibid., 14, 73.
into the speech of the Low German speakers of High German to become a characteristic of the standard? Convincing evidence is lacking on both sides, but it certainly seems that by the eighteenth century, the confusion of voiced and voiceless stops was regarded as a vulgar pronunciation. Systemic pressure in the shape of avoidance of too many homonyms may have been a further factor involved in keeping this distinction. Another factor, which has been suggested, is that although the reflex of MHG /g/, initially before a vowel, may be devoiced, it does not merge with MHG /k/. Initial MHG /g/ has either become an affricate, e.g. in some High Alemannic dialects, which has been simplified to a velar fricative in Swiss German, in Low Alemannic it has become an aspirated [gh]. This phonemic distinction may have spread from the palato-velars to the dentals and labials and fostered the distinction of keeping the two series apart. On the basis of the study of colloquial speech in Swabia, which also shows a great fluctuation between lenis and fortis [b] and [p], and [d] and [t], this has also been suggested. The description of Swabian colloquial speech and the fluctuation between the consonants may be a picture of the situation in Upper Saxony in the eighteenth century. The fluctuation in modern Swabian is

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46) Sprachatlas der dt. Schweiz (SDS) 11, map 94 only shows two occurrences of a velar affricate in the east of St. Gallen and one in Appenzell; Kranzmayer 1956, para. 38; Philipp 1965, 182

47) Pfalz 1956, 12.

48) Bynon 1970, 25-61
accounted for by postulating underlying systematic phonemes: /PTK/, which are always realized as fortis [p t k], and underlying /G/ and /Kü/, which are realized as fortis [k] and aspirated [kh], and underlying /BDG/, which are optionally realized as fortis [ptk] of lenis [bdg]. The amount of fortis stops in the speech of the informant stood in correlation to his or her amount of education, being the influence of the written norm upon speech. The difficulty with this type of description is that it cannot be predicted when underlying /BDG/ are realized as [ptk] and when as [bdg], but it seems to be a fact of Swabian 'Umgangsprache' and probably of other areas with consonant lenition in the local dialects that there is this large margin of variation. Even in educated colloquial speech in most parts of German, the word toll is subject to variation, being pronounced sometimes as toll and sometimes as doll, and the word Tollpunkt has the variant Dollpunkt. However, this variation refers only to toll 'phantastic' when toll is used for 'mad', as in Tollwut, it is never pronounced doll. This seems to be the only case of doublets with initial t and d becoming differentiated in meaning. Vennemann lists other doublets: Atem, Odem, Dackel, Teckel, Dütte, Düte. The doublets Atem, Odem are conditioned. The form Odem is only used in poetic contexts. A more difficult

49) Küpper 1958, 407.
50) Vennemann 1968 b, 224.
51) Vennemann ibid., 108.
52) Vennemann ibid., 224.
53) WDGS 4, 2690.
pair are Dackel, Teckel for 'dachshund'. They are not etymologically the same, but in NHG they are nevertheless used as variants. The form Teckel is more common in the north.\(^{54}\) The last pair of doublets mentioned by Vennemann are Dute, Tute, but this pair is probably only to be found in areas with consonant lenition where every initial /t/ will alternate freely with /k/. The verb gucken, pronounced [kukan], is not an example of interchange of initial g, and k which are always kept apart before vowels in all German dialects, even those with consonant lenition. The pronunciation with initial [k], which is widespread, particularly in North Germany (although Siebs and Duden have [guken]),\(^{55}\) is due to the influence of LG kieken, 'to look', which is etymologically unrelated.\(^{56}\) All these changes have concerned the incidence of individual words.

A final change which involves NHG /t/ and /d/ is restricted to two grammatical classes: the ordinal numbers and the past tense of weak verbs. In MHG the ordinal endings -de and -te were allomorphs in complementary distribution, -de occurred after stems ending in -r or -n, vierte, niunde, and -te occurred elsewhere, sehste, vünfte. In NHG the ending -te has been levelled out to all forms, NHG vierte, neunte.\(^{57}\) This is an analogical change which affects the distribution of MHG /t/ and /d/ in this

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54) Kluge/Mitzka 775.
55) Siebs 1958, 137; Duden Aussprachewörterbuch (DA), 336.
56) Kluge/Mitzka 276; Paul 1916, II, para. 180.
57) Paul ibid., para. 202; Von Kienle 1960, 234.
grammatical class. In the past tense of weak and modal verbs in MHG the ending -de was used sometimes after nasals, kunde, ründele, and occasionally after liquids, solde, after other consonants -te was used, dahte. In NHG the ending -te is always used, konnte, raumte, except when the verb stem ends in ð or ð, when the ending -ete occurs, redete, retete.

5.2.3 The development of an epenthetic [t]
Both Moulton and Anttilla recognize epenthesis, or excrescence, as a type of phonemic change, since it changes the distribution and incidence of phonemes, although it does not change their number. In NHG an epenthetic alveolar stop, [t] spelt ð or ð, has developed in some cases after an alveolar nasal, MHG nieman, NHG niemand, and after other consonants, NHG habich, NHG Habicht, MHG obez, NHG Obst. Most excrescent sounds, whether vowels or consonants, are developed to ease the transition in articulation from one sound to another. Only a limited number of words with an epenthetic consonant have been selected by NHG. This change probably produced many more variants in speech that were not selected. Some evidence for this is given by Adelung who recognizes that an epenthetic [t] is inserted "um des Wohllautes willen", and he continues: "In einigen obd. Gegenden geht man noch weiter und schreibt und spricht daselbst - zwischend, nebend, dieselben". Even in colloquial speech

58) Paul/Mitzka 1960 para. 168, Anm. 4.
59) Moulton 1967, 1402; Anttilla 1972, 70.
60) Adelung 4, 891.
today there are forms such as ebent, which result from the same phonetic process. There is also evidence in the past of a t between n and sch, e.g. verwüntschen, for NHG verwünschen, but no words with t between n and sch have found their way into the standard.

Usually the insertion of an epenthetic consonant is treated as being an irregularity. It is our contention that in many cases this is in fact not so. Epenthetic consonants appear chiefly after -n, -s, -ch. The development of [t] after -s and -ch will be dealt with separately and will be seen to be due to various factors. After /n/ and before /l/ in NHG there are still examples of alternations between forms with an epenthetic consonant and those without, eigen, eigentlich, hoffen, hoffentlich. The main conditioning factor seems to be the transition from [n] to [l]. The epenthetic [t] makes the transition from the nasal to the lateral easier. As the speaker goes from one to the other, the point of articulation remains the same, but the manner of articulation changes, from nasal to lateral. When the speaker closes the nasal passage, and before the shape of the tongue is changed to lateral pronunciation, an alveolar oral stop is produced. It was probably in this context, between [n] and [l] that the epenthetic [t] first arose. In NHG all words which insert a [t] before the suffix -lich: eigentlich, öffentlich, öffentlich.

62) Anttila ibid., 68.
gelegentlich, hoffentlich, namentlich, wesentlich, wöchentlich, wissentlich, have base forms without [t]. NHG flehentlich, which goes back to NHG vlöhlich, is best regarded as being derived, synchronically at least, from the infinitive flehen. NHG ordentlich could be regarded as being derived synchronically from ordnen. Although it has been suggested that these forms with [t] are derivations from the present participle, this is thought unlikely. 63

This insertion of [t] between [n] and [l] is so regular that in a generative phonology of NHG it could be accounted for by a /t/-insertion rule. However neither Vennemann nor Wurzel deal with these forms nor formulate such a rule. 64 The epenthetic consonant seems to have arisen in this position in the fifteenth century. 65 Epenthetic [t], spelt d finally in NHG, is also to be found after a final n which is preceded by an unstressed vowel, e.g. nirgend, irgend, Dutzend, jemand, niemand. The epenthetic consonant appears in some cases even in MGH. 66 Normally this is treated as an irregular sound change, but if grammatical information is taken into account it can be formulated as a regular sound change. An epenthetic [t] develops after final [n] preceded by an unstressed vowel, either [e] or [a], if the -en is not a grammatical ending or the word is not a preposition. There is

63) Paul ibid., para. 206.
64) Vennemann 1968b; Wurzel 1970.
65) Paul ibid.
no epenthetic [t] in sagen, gaben past tense, Gäste, dat. pl., neben, prep. Before a morpheme, however, the dat. pl. of pronouns and pronominal adjectives developed a [t], e.g. allenthalben, beidenthalben, and the Early NHG forms meinenthalben, meinentwegen. In these latter forms the n has been lost in NHG, possibly by dissimilation with the final -n. An apparent exception to our formulation is the adverb zusammen, NHG zesamene. The development of an epenthetic [t] must have taken place before the loss of unstressed final -e, otherwise we would have *zusamment in NHG.

Another case where the development of an epenthetic [t] is conditioned by grammatical categories is where it has developed after a final s preceded by an unstressed vowel, e.g. Palast, Morast, Axt, Obst, selbst, nebst, NHG palas, moras, ackes, obez, selbes, nebens. An epenthetic [t] is not added after the gen. sing. ending -es. In NHG selbes, NHG selbst, the -es had lost its gen. function. Prepositions take an intermediate stand in this respect. The [t] is firmly established in nebst, whereas in mittels (t), vermittels (t) it is optional, and in the case of

67) Paul ibid., para. 243.
68) Duden Grammatik quotes the two forms as variants without any comment. In the examples, however, only mittels is used, para. 3415. The only comment about their distribution that was found, was in Andreesen 1923, 81: "Zwischen mittelst und mittels schwankt der Gebrauch, doch hat die durch Zutritt eines t verlängerte Form das Übergewicht".
The final [t] in NHG is nicht may also be part of this general addition of t to -(e)s, -as, except when -es was a gen. ending.

Among adjectival suffixes used in MHG were -ec and -eht. The latter had a restricted use, only forming adjectives from concrete nouns, e.g. vels, velseht 'rocky'. The suffix -ec, on the other hand, was the most widely used adjectival suffix. In the seventeenth century, however, the suffix -eht. Early NHG -icht, spread to many other adjectives at the cost of MHG -ec, Early NHG -ig, e.g. MHG dornec, Early NHG dornicht. This may possibly have been to avoid a morphemic merger of the MHG suffixes -ec, which is pronounced [iq] in NHG, and -lich, especially in the case of those adjective with stems ending in -l, billig. Was the suffix in fact -ig, or -lich? In the eighteenth century there was a reaction against the use of the adjectival suffix -icht and the only adjective left with this suffix in NHG is fôricht. The MHG suffix -eht not only spread to other adjectives but also to a small number of nouns with the MHG suffix -eh. In NHG these nouns have all taken the suffix -icht, which now expresses the 'collective', Rôricht, Kehricht.

69) All the prepositions ending in -s, such as zwecks, behufs, betreffs, are of recent origin and come from the formal style of the Chanceries. Paul 1919, IV, para. 302.


71) Paul 1916, V, para. 69; Henzen 1957, 199f.
Dickicht, and new formations like Feilicht.\footnote{Fleischer 1969, 142f.} Only the collective Reisig has not taken the suffix -icht. Although the nouns Habicht, Predigt are not collectives they have also adopted the suffix -icht. In all these cases the apparent epenthetic [t] is not of phonetic origin, but results from the adoption of the NHG suffix -eht, NHG -icht.

The cases of epenthetic [t] so far dealt with have largely shown a regular development, but there are some cases of the appearance of an epenthetic [t] which are clearly due to irregular and sometimes unknown factors. A [t] has developed after /i/ in NHG Saft, Hüfte, NHG saf, huf, but there is no obvious reason for it. The final t in doppelt and gewohnt, NHG doppel, gewon, is due to the influence of the past participles gedoppelt and gewohnt. The t in anderthalb is possibly due to the forms of other numerals like dritthalb.\footnote{Paul II, para. 207.} MHG māne, NHG Mond is the only example of an epenthetic consonant after an n preceded by a stressed vowel, and presents a special case. It would also seem to be exceptional in that the epenthetic consonant must have developed after the loss of final -e, whereas we have assumed that NHG zusammen did not develop an epenthetic consonant, since in MHG it ended in -e and epenthetic consonants arose after the loss of -e. This need not be a stumbling block since the development of MHG māne was probably influenced by MHG mānōt 'month'. NHG Mond with epenthetic [t] is probably due to
contamination with MHG mänöt, late MHG mönët, NHG Monat.

Both words are often used in the meaning of 'month' in Early NHG. 74

In the case of epenthetic [t], variants have found their way into the written language. Where [t] developed between [n] and [l] the change is regular. There was also in Early NHG an epenthetic [p] often spelt b, in verbs forms such as kombt. 75

In the pronunciation of many speakers this still exists, but the spelling mp or mb before t has never been accepted by the standard. The reason for this may well lie in the fact that the cluster mp is only found in loan words, e.g. Lampe, and the cluster mb was rejected by some grammarians since the b was not pronounced. 76 Also the insertion of an oral labial stop, whether voiced or voiceless, between [m] and [t] was automatic and did not need to be written. There is, for some speakers at least, a similar epenthetic consonant in singt, [ziqkt], which is pronounced the same as sinkt.

5.2.4 The merger of initial MHG /tw/ with /zw/ or /kw/

MHG /w/ could combine initially with /t/, twel, /z/ zwivel, /k/, written qu, quelle and /s/ swimmen. In NHG words which had the initial cluster /tw/ in MHG show the NHG initial cluster /kw/; qu, Qualm, quer, Quark, Quirl, quasseln, Quarz MHG twalm, twer,

74) Paul 1916, II, para. 207.

75) V. Moser 1951, para. 129, 7.

76) Schottel 204, rejects mb in words such lamb. Epenthetic [d] occurs irregularly in NHG, Quendel, 'wild thyme', Strindel, minder, Paul ibid., para 211.
twark, twirl, twas, twarz, or the cluster /zw/, Zwerg, Zwerch, zwingen, Zwinger, MHG (ge-)twerc, twerh, twingen, twinger. It cannot be determined phonologically or grammatically whether a MHG word with initial /tw/ has merged with /zw/ or /kw/. This change is an unpredictable merger of the reflexes of MHG initial /tw/ with either /zw/ or /kw/, which has resulted in the loss of the initial cluster /tw/ from the German sound system. There were not many words with initial /tw/ in liHG and they were either assimilated into groups which had a greater lexical incidence, or they were replaced by other words, for instance MHG twahen has been replaced by NHG waschen.77

In the modern dialects East CG shows almost exclusively a merger of MHG /tw/ with /kw/, but a few exceptions which are of recent origin show /zw/. A merger of /tw/ with /zw/ is shown chiefly by the UG dialects, but there are some relic forms with /tw/. From forms in Bavarian which show a wrong substitution of /zw/ for MHG /kw/, Zwecksilver for Quecksilber, and the meadow and farm name Quehenberg, which was written Twehenberg till the late eighteenth and nineteenth century and does not show initial NHG /zw/, it has been deduced that Bavarian, and probably all the UG dialects, showed a merger of MHG /tw/ with /kw/ and the forms with /zw/ are later substitutions. The merger of MHG /tw/ with /kw/ can, from records, be noted as early as the thirteenth century.78 In Swabian zw appears the earliest, in the

77) Fleischer 1966, 87.
thirteenth century and in Alsatian and East CG qu appears in the fourteenth century.\footnote{79}{V. Moser 1951, para. 144.}

MHG /tw/ has merged with already existing clusters, /kw/ and /zw/, and was thus eliminated from the German sound system. However recent loans from English such as Tweed, Twill, Twinset, twisten 'to dance the twist', and the new formation Twen,\footnote{80}{For Twen see Carstensen 1985, 253.} have re-introduced the cluster /tw/ into NHG. This is again a case where the standard shows a compromise selection of forms, some having initial /zw/ and some initial /kw/ for MHG /tw/.\footnote{79}{V. Moser 1951, para. 144.}
5.3. THE LABIAL FRICATIVES

5.3.1. The shift of initial MHG /w/ to NHG /v/

NHG has two labial fricatives which contrast medially after long vowels: Höfe : Mowe, and initially before vowels: Wein : fein. Finally only the unvoiced /f/ occurs in NHG, which is spelt ff after short vowels, schlaff, and f after long vowels and diphthongs, Hof, Lauf. In some foreign words it is spelt v, brav. NHG /v/, spelt w also occurs initially before /r/ in words from LG, Wrack, wringen, Wruke 'Swedish turnip', and also in names such as Wrede. Phonemically this contrast is described as being between one of voice, /v/, spelt w, representing a voiced labio-dental fricative [v], and /f/ representing a voiceless labio-dental fricative [f]. This is valid for North German speech, on which standard German is based, but in Central and Southern German colloquial speech w is realized as a voiced bilabial fricative, [β]. 1 The labio-dental pronunciation for /f/ is at least as old as the fifteenth century for Ickelsamer describes it in detail: "Das /f/ würdt geblasen durch die zene / auf die untern lebtzen gelegt, und stymmet wie naß oder grün holz am feure seüt", whereas w is clearly described as bilabial: "Das /w/ wie man in aun hayB essen blot". 2 Gottsched gives us no information as to the place of articulation.

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1) Viktor 1904, para. 100, Anm. 1; Martens 1961, 161; Siebs 1958, 66; Bithell 1952, 128; Paul 1916, II, para. 162.

2) Müller 1882, 128. This quotation, however, does not tell us whether there is any friction.
of w, but simply says: "w lautet wie das lateinische, italienische, französische v, das noch viel gelinder, als b und f und als das deutsche v". This shows that Gottsched considered w to be voiced, and it may be that it was labio-dental since modern Italian and French v are formed at that point of articulation. The labio-dental pronunciation of v, as prescribed by Siebs, is characteristic of North German and, as such, it has become the accepted model in the standard, although educated speakers from Central and Southern Germany will use the bilabial variant. Both the standard labio-dental [v] and the CG and UG bilabial [β] are assumed to have developed from a semi-vowel [u]. This may represent the phonetic value of initial w in MHG. Strong evidence for this is provided by UG dialects where the reflex of initial MHG jw is a voiced bilabial semi-vowel without lip rounding and friction, and by English which pronounces initial w as a bilabial frictionless continuant. In NHG this semi-vowel has changed its point of articulation from bilabial to labio-dental, and its manner of articulation from semi-vowel to fricative. There was no need for this change to be reflected in spelling since no phonemic change was involved. It seems

3) Gottsched 36.

4) For Latin v, see Allen 1965, 40ff. Spanish v is bilabial, Stirling 1935, 43f., and since Gottsched does not mention that language, this would be a strong indication that he is advocating a labio-dental pronunciation for German w.

5) This is the traditional value assumed for MHG w: Paul/Mitzka 1960, para. 76, Weinhold, Ehrismann, Moser, para. 69.


7) Gimson 1962, 210f.
plausible to regard the CG and UG bilabial fricative of
colloquial speech as representing an intermediate stage between
the semi-vowel of MHG and the labio-dental voiced fricative [v]
and the standard
of Low German showing the change of only one phonetic feature

The latter is the same value as the
reflex of Germanic initial w in the Scandinavian languages. If
this is so, then there are good structural reasons for a change
of bilabial fricative to labio-dental fricative. This would
represent a complete integration of the reflex of MHG w into the
system of fricatives, where it would enter into a correlation of
voice with /f/. Depending on whether MHG initial v was either
voiced or voiceless, the change could be regarded as either a
drag-chain or a push-chain. If MHG v was phonetically a voice-
less sound, then the semi-vowel [ʉ] was dragged into the empty
space to form a voiced partner for it. If, on the other hand,
MHG v was voiced, then the development of a voiced fricative
from the semi-vowel [ʉ] may have pushed the voiced v into becom-
ing a voiceless fricative. Whatever the actual process, the
result has been the creation of a phonemic voiced-voiceless pair
of labio-dental fricatives initially in North German and the
standard. Kranzmayer says that the change of a semi-vowel to
bilabial fricatives began about 1100, since the neighbouring

8) Penzl 1964, 306, mentions Schwarz 1929, 57, and Lessiak 1933,
57, who have noticed the causal relationship between these
changes.

9) Kranzmayer 1956, 74.
languages substituted [b] for [β] and not [v]. The oldest speech islands show a bilabial [β], and this they will have brought with them from their homeland. In the Zimbrian speech island in northern Italy MHG /w/ and /b/ have merged in a bilabial fricative which is always written b, but MHG /b/ in initial position is not part of this merger since it has become /p/: part 'beard', puoxe 'beech', hint 'wind', läber 'liver'.

The spelling with b does not indicate a bilabial stop pronunciation, but is used for the voiced bilabial fricative /β/ phoneme in all positions. Phonetically there is no voiced stop [b]. From all the evidence, direct and indirect, it is difficult to say when the semi-vowel [u] became a fricative in North Germany, but the labio-dental pronunciation prescribed by Siebs reflects North German pronunciation.

The historical development of the semi-vowel or glide [u] to the labio-dental [v] in initial position is reflected in the synchronic rules of a generative phonology of German which derives all occurrences of surface [v] from the underlying glide /w/. This reflects the historical change as we have discussed it for initial position, but obviously underlying forms such as /mβw/ have no historical warrant in the history of NHG. This is also the case in generative treatments of German dialects, but Becker limits his rule to Darmstadt Hessian and, by implication,

10) B. Schweizer (hrsg.) 1939, para. 20, 26.
11) Vennemann 1968b, 90-95; Wurzel 1970, 244-248.
it would seem he assumes a glide pronunciation for initial \( \text{w} \) in the other two dialects he treats, Zurituutsch and Alsatian.\(^{12}\)

For him, MHG /\( \text{u} \)/ and /\( \text{w} \)/ only differ in the feature syllabic.\(^{13}\)

However the fact that these otherwise exceptional forms can be made to fit easily into a generative description of German, shows how they fill a hole in the pattern, or fit into an already existing phonological rule.

5.3.2. Merger of MHG /\( \text{w} \)/ and /\( \text{b} \)/ after /\( \text{l}, \text{r} \)/

In MHG both /\( \text{b} \)/ and /\( \text{v} \)/ occur after /\( \text{l} \)/: *selber*, *Salve*, but the words which have \( \text{v} \) in this position are all Romance loan words. MHG /\( \text{b} \)/ after /\( \text{l} \)/ and /\( \text{r} \)/ represents both MHG /\( \text{b} \)/ and /\( \text{w} \)/: MHG *sterben* : *varwe*; *selbe* : *swalwe*; MHG *sterben* : *Farbe*; *selbe* : *Schwalbe*. The spelling \( \text{w} \) reflects the pronunciation of MHG \( \text{w} \) as a bilabial fricative, which is still current in many dialects.

By this change no new phonemes have been created and none lost, but after /\( \text{l} \)/ and /\( \text{r} \)/ the reflexes of MHG /\( \text{w} \)/ and /\( \text{b} \)/ have merged and the resultant sound is a voiced bilabial stop. It is more natural to assume a change involving only one phonetic feature, from fricative to stop, rather than to assume that a semi-vowel changed directly into a stop. This conditioned merger is most widespread in UG dialects and is part of a more general merger of MHG /\( \text{w} \)/ and /\( \text{b} \)/, which affected all occurrences of MHG /\( \text{w} \)/ and /\( \text{b} \)/, except for initial /\( \text{b} \)/ before vowels which

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13) Becker ibid., 18f.
has become /p/.\textsuperscript{14} The UG dialects, particularly Bavarian, are the source of this merger, from which the standard language has selected the conditioned merger of /b/ and /w/ after /l/ and /r/\textsuperscript{15}, which merely increased the distribution of /b/ and decreased that of /w/. In traditional histories of German this change is described as a shift of a fricative to a stop,\textsuperscript{16} but is this in fact so? It seems more 'natural' for a change to occur the other way round, i.e. for a voiced stop to become a voiced fricative. This has happened in Spanish and also in Danish.\textsuperscript{17} The development of Germanic medial ë, ð, ɣ, to stops is not a certain example, as it lies too far back in time. In Bavarian, the dialect from which lb and rb have been imported into the standard, it is not strictly true to say that MHG /w/ developed into a stop. What happened was that MHG /b/ and /w/ merged in a bilabial fricative [β], which was written b. The actual phonetic development consisted of exactly the opposite: the voiced bilabial stop [b] lost its occlusion and became a voiced bilabial fricative [ð], and the bilabial semi-vowel [ɣ] became a voiced bilabial fricative [ɣ]. The result was that the two sounds merged, since they and the resultant phoneme could be written either w or b. This merger was reflected in the spellings lb, rb

\textsuperscript{14} Kranzmayer 1956, para. 25.

\textsuperscript{15} Fleischer 1966, 85; Karstien 1939, 141.

\textsuperscript{16} Wright 1907, para. 235.

\textsuperscript{17} For Spanish, Menéndez Pidal 1958, para. 41, for Danish, Skautrup 1, 1944, 228f.
for MHG \( lw, rw \) although they would probably have been pronounced as fricatives in Bavarian itself. The spellings \( lb, rb \) found their way into the standard and came to be pronounced with a voiced stop as the second element. Since they reflected historically MHG \( /lw/, /rw/ \) it looks as if there is a change from a fricative to a stop, which is rather unusual. In this case the spelling has played an important role. Some CG dialects have no phonemic contrast between \( /v/ \) and \( /b/ \) after \( /l/ \) and \( /r/ \) but the two sounds are in free variation\(^{18}\), and this may have continued for some time in standard colloquial speech, but the spelling with \( b \) has furthered the acceptance of the stop pronunciation. The spelling \( rb \) and \( lb \) has become firmly established in EGG by the sixteenth century.\(^ {19}\) This conditioned merger does not seem to have brought about any homonymic clashes.

In the inflexion of some adjectives in MHG, \( /w/ \) alternated with zero: \( gel, gelwes, fal, falwes \). In these cases doublets have arisen, one with \( b \) after \( l \) as the regular development of the inflected forms \( gelb, falb \) and one with no \( b \), from the nominative, \( gelh, fals. \)\(^ {20}\) These doublets seem only to have arisen among the adjectives.

\(^{18}\) Schädlich 1966, 190.

\(^{19}\) V. Moser 1951, para. 131, \( \text{Fleischer 1970, 220.} \)

\(^{20}\) Karstien 1939, 141, fn. 1.
5. 3. 3 The loss of medial MHG /w/ 

The sign w was also used medially between vowels in MHG: houwen, sniwen, bűwen, niuwe, bläwe, ūwe. As in initial position it seems reasonable to assume a semi-vocalic pronunciation. In NHG this semi-vowel [u] has been lost after MHG long close high vowels and diphthongs: hauen, schnäe, bauen, neue. Mechanically this change consists of loss of liprounding in the case of schnäe and the coalescence of the semi-vowel with the resultant rounded second element of the diphthongs in hauen, bauen, neue. (The latter diphthong has a rounded second element only in some pronunciations see 6.3.3.)

Phonetically this change is parallel to the loss of medial MHG /h/ and /j/, and is part of a general tendency for weakly articulated semi-vowels and the aspirate /h/, which acted as hiatus consonants between stressed vowels and unstressed schwa to be lost. This created a new type of distribution for long vowels and diphthongs, allowing them to occur before unstressed schwa in 'free position', as Moulton calls it. In this case it is difficult to separate the mechanical change -weakening of articulation -from the functional change, -elimination of hiatus consonants.

21) This pronunciation is prescribed by Siebs 1958, 58, WDA, 42, but Moulton uses /oi/ to transcribe it, 1962, 64f.

22) Hefnner 1950, 184.

There is a slight variation of this development when /w/ followed the long, low back vowel MHG /a:/ in which case it combines with it to form the diphthong au and thus merges with the reflexes of MHG /äu/ and /ou/: MHG bläwes, NHG blaues. The NHG uninflected blau, MHG blā, is an extension of the diphthong of the inflected forms to the nominative used in predicative position. 

Evidence for this change is provided by the spelling aw which is used not only for the NHG sequence /äu/ but for the reflexes of MHG /ou/ and /äu/ in ECG in the fifteenth century: haws, bawm, MHG hūa, bωm. The spelling au however, becomes accepted as the standard form.

After long /ō/ MHG /w/ disappeared, MHG sōwes, NHG Sees but in the case of MHG øwec, NHG ewig, with w representing a labio-dental fricative pronunciation we have an exception. This may be the result of spelling pronunciation or wrong morphological analysis into ö - wec, in which case w, being then in morpheme initial position, developed in the same way as w word initially. There seem to be no recorded forms with b for ewig. Luther of course, uses the word frequently, ewiges Leben. The reflex of MHG /iu/ was spelt ew by Luther and others. In some dialects medial MHG /w/ has become a stop or bilabial fricative even in such forms as blāwes which become blabes. This spelling need not reflect

24) Wright 1907, para. 236; Priebsch and Collinson 1958, 128.
26) Dt. Wb. 3, 1201.
27) SdS II, Maps 157, 159. Most occurrences are scattered, a few in Graubünden, St. Gallen and Appenzell, with a few in Glarus and Wallis.
a stop pronunciation but simply the fact that MHG /b/ and /w/ have merged in this position. Moser says that the forms with b were widespread in all areas except High Alemannic, but they only maintained themselves in Bavarian where the present dialects reflect this merger.\(^{28}\) Kranzmayer regards forms such as snaibm as 'bairische Kennformen', but some very archaic dialects have even retained w in inflected forms such as sneowe.\(^{29}\) Three words in NHG reflect this, Eibe,\(^{30}\) hieb,\(^{31}\) which became general in the middle of the sixteenth century, and Witwe which appeared in the form Wittib in parts of CG even in the seventeenth century. The form Wittib appears in UG sources in late MHG with a b and finds its way into the standard, but in the eighteenth century the form Witwe ousted it.\(^{32}\)

5.3.4. The merger of MHG /v/ and /f/ in medial position
MHG differentiates clearly in spelling between v and f medially, gräven : slafen and this is taken to reflect a lenis : fortis distinction in pronunciation, which is still maintained in some UG dialects, notably Alemannic.\(^{33}\) In Bavarian the two fricatives are still realized as lenis and fortis phonetically, but the occurrence of lenis or fortis depends on the length of the

\(^{28}\) V. Moser 1951, para. 131, 3, Anm. 13.

\(^{29}\) Kranzmayer 1956, 75.

\(^{30}\) Dt. Wb. 3, 77.

\(^{31}\) V. Moser ibid.

\(^{32}\) Dt. Wb. 14, 2, 839.

\(^{33}\) Keller 1961, 54.
preceding vowel: short vowel before fortis consonants, long vowel before lenis consonant. In NHG they have both merged in a voiceless labio-dental fricative: Grafen, schlafen. This merger does not seem to reflect the situation in the ECG dialects but is a development peculiar to the standard language. In some UG dialects the reflexes of the two sounds are kept apart, phonetically if not phonemically, and in CG and Low Alemannic the reflexes of NHG /v/ have merged with the reflexes of NHG medial /b/. The resultant sound is sometimes realized as a labio-dental fricative and sometimes as a bilabial fricative. Phonemically a merger has taken place but the two sounds are in free variation. The functional yield of NHG /v/ was not very great and thus the natural reaction of the phonological system seems to have been to eliminate it, either by merger with /b/ or /f/. The dating of the merger in the standard language is very difficult, because in most areas scribes, for a considerable time, distinguished NHG /v/ and /f/ by writing the latter ff and the former f. In Bavarian in the sixteenth century there is clear evidence that the merger has taken place, since no distinction is made in writing between them. Grammarians also insist on distinguishing between the use of f and ff. Frangck comments: "Diese wort/ hofeman/ hofen, teufel u./ haben ein f/ hoffen,

34) Keller ibid., 213 ff.
35) Schirmunski 1962, 368.
36) V. Moser 1951, para. 140, 2.
37) Jellinek 1906, 322.
teuffen, helfes u./ zwey ff/ Solchs lernt die ausssprache".38

It is difficult to know whether his comments are really based on a phonetic distinction, or whether he assumes that a difference in spelling must reflect a difference in pronunciation. The NHG rule for the orthographic use of ʃ and ff is sketched out by Gottsched: "ʃ wird häufig gedoppelt, aber gleichfalls nur nach kurzen vocalen z.E. raffen, gaffen, treffen, schiffen, hoffen, Stufen. Falsch aber würde es nach langen Vocalen geschrieben, Graf, Hafen, Schlaf, Schaf, Strafe, Hof, denn diese klingen ganz anders, als schaffen, schlaff, straff, soff".39

It is interesting to note that nowadays NHG has Stufen with a long vowel, and not Gottsched's Stuffen with a short vowel. That the spelling of a word with ʃ or ff may influence its pronunciation can be seen from the NHG word Neffe which in MNG was neve. If this word had undergone the regular development it would be *Nefe, but since it came to be spelt with ff, it was pronounced with a short vowel. Luther uses the form Neffe, but Schottel has two forms neffe, nefe.40 The 'Deutsches Wörterbuch' has an interesting quotation from a dictionary of 1741: "neffe wird nur von vornehmen leuten gebraucht". If this is so, then it may explain why it is an exception. More educated speakers would encounter the written word more often

38) Muller 1882, 100.
39) Gottsched 52.
40) Schottel 1386.
and pronounce it as it came to be written, with ff. 41 Neffe
is not the only word which becomes spelt with ff in Early NHG. Other examples are Hafen, UG for 'pot', Schiefer, Tafel, but the spelling ff is later replaced by f. Paul refers to this as a sound change: 'Verdoppeln und Verscharfung des f' and 'die nhd. Gemination', but it is really only a change in spelling. 42

The main reason for the merger of medial NHG /v/ and /f/ in NHG seems to be the low functional yield of /v/. Germanic f, of which it is the reflex, goes back to IE p, but only when the stress came immediately in front of it. In other stress conditions it merged with the reflexes of IE bh, which is represented by b in OHG and MHG. Thus Germanic f and its successor were not frequent. The only words containing reflexes of MHG /v/ in NHG are: Eifer, elfe, Frevel, Geifer, Höfer, Käfer, Neffe, Ofen, Schaufel, Schiefer, schnaufen, Tafel, Teufel, Ufer, Ungeziefer, Wolf, Zweifel. 43 MHG /v/ and /f/

only contrasted in two positions, medially between vowels and after /l/ but there are not many examples of MHG /v/ after /l/ vulven. In other cases, such as the numerals vinf, zwelf, elf and the verb dürfen, only /f/ occurs, where historically one would expect /v/, which shows that even in OHG these phonemes had merged in this position. The merger causes no homonymic clashes, since words like MHG offen and oven are kept apart in

41) Dt. Wb. 7, 519.
NHG by vowel length, offen with a short vowel. Ofen, with a long vowel. This merger was also similar to general developments in CG where NHG medial /v/ was eliminated by merging it with NHG /b/. Some CG dialects, however, do have a merger with /f/ as in the standard language. \(^{44}\)

Although the reflexes of medial NHG /v/ and /f/ have merged in NHG, a new voiced labio-dental partner for /f/ has been created by the borrowing of words from LG like Howe, stowen, from French brave, and other languages, Diwan, Lava. \(^{45}\) In the case of the medial /v/ is from Love \(^{46}\) a spelling pronunciation of one form of a word, since there was an alternative, leu. Luther uses both the forms low and lewe, but at this time the forms low and lowe become the main forms in the standard. From the evidence of rhymes like lewe trewe it seems that the w is not yet pronounced as a labio-dental fricative [v]. \(^{47}\) The word fowe is recorded in the fifteenth century. Schottel has the form meu. Luther does not use the word. \(^{47}\) These two words seem to have a similar history but it is impossible to say exactly when the w became pronounced as [v], but this had certainly happened by the nineteenth century. Some LG loans have given up their medial voiced v by analogy, Haff, is recorded in Early NHG with inflected forms haves, have. NHG keifen

\(^{44}\) Penzl 1964, 299f.

\(^{45}\) Only words where v occurs after a stressed vowel are included. Thus words like Lawine, Lavendel are excluded.

\(^{46}\) Dt. Wb. 6, 825.

\(^{47}\) Dt. Wb. 6, 2166ff; Kluge/Mitzka 489.
corresponds to MLG kίven, and possibly the voiceless [f] was levelled out from those forms like keift where it was automatically devoiced. The ʃ in Hufe, measurement of land, is a devoiced MLG v. A variant word form of Hafen with medial v in spelling, but not in pronunciation, exists in place names such as Wilhelmshaven, Cuxhaven. Proper names have medial v, but it is pronounced voiceless, David, Eva, Beethoven, Havel. The only common noun to have a medial v in spelling, which is pronounced [f], is Frevel. The place name Hannover with its inhabitants Hannoveraner is usually cited as a case where voiced and voiceless fricatives alternate. Hannover, where the stress precedes the v has a voiceless [f] and Hannoveraner, where the stress does not precede the v, has a voiced [v]. This is usually said to be a modern illustration of Verner's Law. However Siebs also allows a voiceless fricative in Hannoveraner. The people who are called Sievers fluctuate as to whether they use a voiced or voiceless fricative in their name.

The creation of the opposition /v/: /f/ medially between vowels in NHG is the result of extralinguistic borrowing which fills a gap in voiced - voiceless correlation among the fricatives, since the opposition /s/: /z/ already existed in this position.

49) Bach 1965, para. 31; Kuhn 1964, 13-18.
50) Siebs 1958, 66.
Many people in colloquial speech seem to substitute a voiceless [f] for v in loan words. Duden Grammatik lists this with the examples, evangelisch, Klavier, Vikar, Vulkan, as 'Nichthochlautung'. Historically this seems to have been the first reaction to the introduction of words with medial v. An Early NHG examples is ein braffe soldat, and Lessing has Notif, Mottle. Probably the pronunciation of v as a voiced labio-dental fricative is quite recent. One example where this has been in flux is Nerv, Vietor gives for the plural, ['narven] oft ['nerfan'], and the adjective [narvis], whereas the Duden gives only ['nerfan], and Siebs, 1958 edition says: "doch heißt die Mehrzahl ['nerfan] und nicht ['nerven]. The WDA has both forms for the pl., as well as ['nervis, nerrvis] with no comment. Medially between vowels there are examples of the substitution of the voiced stop for French v or MLG v: Abenteuer, schraube, schnauben, NHG aventiure, MLG schrove, snuven. These words were probably borrowed before the reintroduction of voiced v. Abenteuer is a special case for which there is no immediate reason.

53) Vietor 1931, 277.
54) DAW 537.
55) Siebs 1958, 66.
56) WDA 378.
57) Paul 1916, II, para. 149.
5.3.5 The development of NHG initial /v/

Initial NHG /f/ is spelt both v and f before vowels, Vater, Fahrt, vor, für. New loan words coming into NHG with initial v are pronounced with the voiced /v/ Vektor, Vandal, verbal, vulgar, Virus, Vikar. Initially before l and r, f is the usual sign with the exception of the one word VlieB. Sometimes the distinction v : f is used graphemically between homonyms: viel, fiel, Vetter, fetter. Attempts to do this with vest, adj. and Fest, noun, were made up to the eighteenth century, but nowadays this orthographic difference is maintained by the difference small letter versus capital letter. Initial Germanic f continued to be written f in OHG and it was not till NHG that it became written v. Why was the reflex of Germanic f written v medially but f initially? The reason is quite clear when it is remembered that the reflex of Germanic p between vowels in OHG is the fortis labio-dental fricative f. If the reflex of Germanic f were written f medially, then there would be a graphic merger of the reflexes of Germanic f and those of Germanic p in this position. To avoid this, the reflex of Germanic f is therefore written v, which graphic sign comes from the Romance languages. Initially the reflex of Germanic p was written pf or ph and here Germanic f could still be written f, as there was no danger of any graphic merger. As well as the difference lenis : fortis, OHG v and f.

58) Paul ibid., para. 149.

59) Penzl 1964, 309; Must 1967, 460.

58a) The sign v is not used with any frequency until the ninth century. In the tenth and eleventh centuries f and v fluctuated. In Rother's works, however, v is generally used initially after words ending in sonorants, otherwise f is used, in fthe. However, f also appears after words ending in separate as well. Traune/Litzka 1961, para. 130, lmm. 1 and para. 157, lmm. 3.
may also have been distinguished by their place of articulation, v being bilabial and f labio-dental.  

Although lenis character is certain for medial MHG /v/ the phonetic character of initial MHG v is not so certain. The increase, and almost exclusive writing, of v initially for MHG /v/ seems to imply that it was lenis. However the increased use of v may be of a merely graphic nature. In MHG the reflexes of Germanic f are written v before a, o, e, i, and f or v before other sounds. Finally Germanic f is only written f. Indirect evidence in the shape of loan relations between OHG and Slavonic and Romance, and the reflexes of MHG /v/ in relic speech islands have also been adduced to support the hypothesis that MHG initial /v/ was lenis. MHG v renders the voiced Romance v, while the voiceless Romance f is rendered by MHG pf. Germanic f first rendered Slavonic p (there is no Slavonic f) and then later in the ninth century, Germanic f (OHG v) rendered Slavonic b. Similarly the relic speech islands, such as Gottschee, have a voiced [v] as the reflex of MHG initial /v/. Both these

60) Penzl ibid., 311f.
62) Schwarz 192, 43f, Lessiak 1953, 59f.
pieces of indirect evidence are not absolutely conclusive, and, in fact, OHG and MHG initial /v/ may have had quite a wide phonetic realization. It could have been fortis, semi-fortis or lenis since strength of articulation was not a relevant distinctive feature in initial position.

63) Penzl 1964, 313.
5.4 THE SIBILANTS

5.4.1 The merger of MHG /s/ and /z/ medially, wise, wîse, and MHG has a contrast in writing between s and z, • finally des, daz, and between ss and zz medially: messa, wazer. This is assumed to reflect a phonemic contrast which now no longer exists in NHG.¹ All these words have in MHG a voiceless alveolar fricative [s] for the MHG signs s, z, ss, zz. The assumed opposition between /s/ and /z/ in MHG in these positions is not to be found in any modern German dialect, and if it existed, it must have been lost universally. Historical and comparative evidence supports the graphic evidence that there was a phonemic contrast between /s/ and /z/. MHG /s/ is represented by a voiceless or voiced alveolar fricative in modern English and Dutch, was, (the English final voiced sound is a later development), whereas MHG /z/ is represented by a voiceless alveolar stop t in Dutch water, dat, and English, water, that. This latter correspondence is, of course, part of the second or High German sound shift. Further evidence is provided by the fact that most MHG poets did not rhyme s and z² and that scribes kept them apart until the thirteenth century.³ There is a great deal of indirect, but conclusive, evidence that the graphic opposition siz must represent a phonemic opposition as well. The difficult

²) Priebsch and Collinson 1958, 124.
³) Schulze 1967.
question is how this opposition was realized phonetically. Traditionally it has been assumed that MHG s..."stand etwa zwischen s und ß" and had "eine dem sch ähnhliche Aussprache". This seems to be confirmed by the merger of MHG /s/ with MHG /ß/ before initial consonants and after /r/ in NHG (see 5.4.3). It has also been assumed that MHG /s/ and /z/ not only differed lenis : fortis but also according to their point of articulation. MHG /s/ may well have had voiced allophones, medially between vowels and finally, but in the positions where the merger took place, finally and when doubled, it was voiceless. An attempt has been made, on the basis of the sibilants which occur in Basque, to identify MHG /s/ and /z/ phonetically. They are both assumed to be voiceless and alveolar but /s/ is pre-dorsal, symbolized [ß], whereas /z/ is apical, symbolized [z]. This distinction describes what part of the tongue approaches the palate to make the narrow cavity through which the air is forced to produce friction. In the case of [ß] it is the front part of the dorsum or back of the tongue, and in the case of the [z] it is the tip or apex of the tongue. These phonetic details seem to be plausible, but even if these exact articulations were proved conclusively to be wrong, there would still be enough evidence

4) Paul/Mitzka 1957, para. 110.
5) Karstien 1939, 125.
6) Joos ibid., 222. [ß] and [z] are used here for typographical convenience. His actual signs are [ß] and [z].
7) Abercrombie 1967, 52f. shows that this is a general variation with alveolar fricatives. What is interesting for NHG is that the difference is taken to be phonemic.
that /s/ and /z/ are phonemically distinct in MHG.

In standard NHG and all HG dialects these two phonemes have merged in final position and medially after a short vowel in a voiceless alveolar fricative [s]. MHG des, daZ, NHG des, daZ, MHG wazzer, messe, NHG Wasser, Messe. The merger has an obvious phonetic and phonological reason: the distinction between the sounds was quite small and would not have allowed much variation in pronunciation, and secondly it was the only distinction of its kind among the MHG consonants, as far as can be judged. Mechanically two sounds which do not differ a great deal tend to merge, and functionally this opposition (pre-dorsal: apical) was an anomaly in the consonant system. The functional yield of the opposition /ss/ and /zz/ after a short vowel was not great since MHG /ss/ came from IE *t + t and this may have been an added factor in not preventing the merger. Finally the merger could have created homonyms, but since most of the words were distinguished in other ways, e.g. by their vowels, des, daZ, or had a voiced counterpart in inflected forms: MHG waz, waz, NHG weib, weise, [z], they merely paralleled other cases where voiced and voiceless sounds are neutralized in word final position, e.g. MHG hof, hoves. A homonymic clash was avoided in the case of the reflexes of MHG waz, was, by the latter being replaced by war on the analogy with the plural waren. This merger of MHG /s/ and /z/ may be seen as contributing to the elimination of the alternation between /s/ and /z/ in the verb 'to be'; which is retained in English was, were and Dutch was, waren.
In German, however, the /s/ still remains in the past participle *gewesen*, which gives weight to the fact that the replacement of *was* by *war* was to avoid a homonymic clash of these two words, MHG *was, waz*, rather than to eliminate the /s-/r/ alternation as is done in verbs such as NHG *verlieren, verliesen, verloren* (see 5.7.3).

In the case of the MHG third person neuter sing. pronoun, nominative and accusative *ez*, gen. *es*, there was a merger of both forms in *es*, NHG there is no longer any distinction between the gen. and acc. This merger is tolerated by NHG, since the use of the gen. of pronouns and nouns in general has become less and less frequent and is usual only after a few verbs: *bedürfen, begehren, brauchen*. The merger of MHG *ez* and *es* fits in with a general decline in the use of the gen., but it did in fact introduce a new syntactic possibility, that of an adjective governing the acc.: *er ist keinen Pfennig wert*. Most of the grammar books do not recognize this as a separate category of the construction with the accusative adjectives, but usually list them as alternative forms of to that with the gen. or a preposition governing the gen. or now more frequently the acc. adjectives which govern the gen. and are now being replaced by prepositions taking the acc. case. The actual number of adjectives which govern a straight accusative still appears to very small: *fähig, gewahr, gewohnt, los, müde, satt, überdrüssig, voll, wert*, which shows that this a recent development.


A similar merger has taken place with MHG acc. **alles**, and gen. **alles**. Where a distinction is needed from the acc., a construction with an + the dat. has developed to show this: *ich bin an alles gewöhnt*. The need to differentiate forms which might be pronounced the same may also be a contributory reason for the relative pronouns gen. forms, **dessen**, **wessen** with the enlarged forms. In unstressed position MHG was, wes and daz, des may have been pronounced the same in certain styles as [ves], [des]. This can be documented from present day German. To make the distinction clearer the ending -en may have been added. It was already present in sentences such as: *des en weiz ih niht*, and it is also used in NHG deren. This avoidance of a merger of the two pronouns may have been a contributory factor in the acceptance of the extended forms with -en. There is, however, a timelag between the merger of final /s/ and /z/ in the thirteenth century and the emergence of the forms like **dessen**, **wessen** in the fifteenth century. Luther did not use the extended forms but Hans Sachs used both forms. The short forms des, wes were used right into the eighteenth century, cf. Goethe, Faust I: line 494, "Bist du Faust, des Stimme mir erklang." The merger of medial MHG /ss/ with /zz/ and of /s/ and /z/ in final position can be followed in medieval documents, but it is difficult to set up its chronological and geographical spread.

10) Bohmeier, 31.  
10a) MHG *nicht* is a negative particle generally used before the verb, with or without *nicht*.  
In some places after a period of great uncertainty in distinguishing the signs s and z, later scribes distinguish them carefully. Similarly geographically there is, for example, in North Bavarian an area with the centres Würzburg, Bamberg and Langheim and in the south an area from Augsburg to Ellingen, both of which show a graphic confusion of s and z and other signs for the two phonemes. However between these two areas there is a broad strip with the centre Nürnberg which has only a very occasional confusion of the phonemes.\textsuperscript{12}

It must be emphasized that the confusion of the graphemes s, ss, z, zz, applies to all the allophones of MHG /z/ but only to the voiceless allophones of /s/, that is when doubled or finally. The voiced medial /s/ remains spelt s, and is only occasionally written z in CG.\textsuperscript{13}

In the Alemannic area the merger must have taken place about the end of the twelfth century because when German documents appear, none of them show a clear graphemic, and thus phonemic, distinction between the phonemes.\textsuperscript{14} In the northern and central part of Bavarian and East Franconian the graphemic and phonemic merger would seem to have occurred by the middle of the thirteenth century.\textsuperscript{15} In the EGG area documents in German do not appear until later, and the merger cannot be dated with certainty, but it

\textsuperscript{12) Schulze 1967, 377.}
\textsuperscript{13) V. Moser 1951, para. 146. 2b.}
\textsuperscript{14) Boesch 1949, 154f.}
\textsuperscript{15) Schulze 1967, 168.}
probably began in the second half of the thirteenth century. Most of the chanceries kept the voiced and voiceless alveolar fricatives apart by writing the voiced one \( \mathfrak{s} \) and the voiceless one \( \mathfrak{f} \). Only Bavarian distinguished them differently, writing the voiceless one \( \mathfrak{z} \) and the voiced one \( \mathfrak{s} \). After the middle of the fifteenth century this gave way to the \( \mathfrak{f}, \mathfrak{f} \) system.\(^{16}\) In late MHG and Early NHG there were a great number of signs used to designate the alveolar fricatives \( \mathfrak{f}, \mathfrak{f}, \mathfrak{z}, \mathfrak{z}, \mathfrak{s}, \mathfrak{f} \). Initially before vowels and consonants \( \mathfrak{s} \) was used, and \( \mathfrak{s} \) and \( \mathfrak{z} \) were used finally. For the single medial voiced reflex of MHG /s/, \( \mathfrak{z} \), \( \mathfrak{z} \) and \( \mathfrak{s} \) were used and \( \mathfrak{f}, \mathfrak{f}, \mathfrak{z}, \mathfrak{z}, \mathfrak{s} \) for the voiceless sound.\(^{17}\) Of the signs, only \( \mathfrak{f}, \mathfrak{f}, \mathfrak{s} \) are used later to designate the alveolar fricatives. In Early NHG the use of \( \mathfrak{s} \) for initial and medial voiced reflexes of MHG /s/ had been regularized, but for the voiceless sound \( \mathfrak{f} \) and \( \mathfrak{s} \) were used indiscriminately medially and \( \mathfrak{s} \) and \( \mathfrak{s} \) in final position. Reformers of orthography tried to regulate the use of these various signs and in the seventeenth century there existed two types of spelling systems.\(^{18}\) One, used by Johann Fischart (1547-1590) and followed by Rompler von Löwenhalt (1610-1670), wrote \( \mathfrak{s} \) mostly finally and \( \mathfrak{f} \) medially after a short vowel and \( \mathfrak{s} \) after a long vowel. This system had the disadvantage that after long vowels and diphthongs no distinction was made between the

\(^{16}\) V. Moser ibid.

\(^{17}\) Schmitt 1936, 36.

\(^{18}\) Michel 1959, 466 and table on 467.
voiced and the voiceless alveolar fricative, both being written \( \mathcal{f} \). The other spelling system, which was to be the basis for modern spelling, used \( \mathcal{f} \) medially only after short vowels and \( \mathcal{f} \) only after long vowels and diphthongs. This system, however, was not generally adopted but in the eighteenth century it was adopted by Gottsched. He too set up \( \mathcal{b} \) after a long vowel or diphthong and \( \mathcal{ss} \) after a short vowel for the voiceless alveolar fricative.\(^{19}\) Gottsched had opponents, but when finally his system was adopted by the lexicographer Adelung, it was assured of success.\(^{20}\) The use of \( \mathcal{b} \) was finally settled by the Second Berlin Conference on Orthography in 1902. NHG thus has three symbols for the voiceless alveolar fricative \( \mathcal{s}, \mathcal{ss} \) and \( \mathcal{b} \), the latter symbol not being used in works published in Switzerland. The symbol \( \mathcal{s} \) is used when there is an inflected form with medial \( \mathcal{s} \), representing a voiced [z]: \( \text{las, lasen, ss} \) is used medially after short vowels \( \text{wissen} \), whereas \( \mathcal{b} \) is used medially after long vowels and diphthongs, \( \text{rei\ssen, flie\ssen} \), and finally when the inflected forms show intervocalic \( \mathcal{ss} \) or \( \mathcal{b} \), \( \text{ris\ssen, rieB, flie\ssen, floB} \).

There are, however, some anomalies: \( \mathcal{s} \) is used in \( \text{aus, des, wes,} \) despite the forms \( \text{auB\ssen, dessen, wessen} \). According to the rules they should be written \( \text{auB\ssen, des, wessen} \). But \( \text{das} \) and \( \text{daB} \) with different functions are kept apart graphically. The word \( \text{bewu\ssen} \) has \( \mathcal{b} \), probably by analogy with \( \text{gewu\ssen} \), or \( \text{wu\ssen} \), and the derivational suffix \(-niss\) appears as \(-nisse\) in the plural.

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19) Gottsched 56f.

20) Adelung 3, 1239.
Gleichnis, Gleichnisse. That  is unnecessary is shown by
the fact that the Swiss do not print it. What then is its
justification in present day German? None, as far as showing the
pronunciation of the fricative is concerned, since the signs ss
and B both represent voiceless sounds in müssen and flieBen.\(^{21}\)
In some cases, however, it does show that the preceding vowel is
long: Masse, MaBe. But there do not seem to be many minimal
pairs, Busse, BuBe is another. In neither word could ss or B be
be replaced by s, since this would indicate the voiced sound as
in Masern. An alternative would be to introduce aa for the long
vowel and separate the two words: Masse, Maasse. Grosse
eliminates B from the German orthography and introduces aa, ee
for long vowels but it does not seem clear how he separates [s]
from [z].\(^{22}\) Theoretically it would be possible to do without B,
but it is still retained and it has almost become a sign of a
good education if one can use it properly.\(^{23}\) Its use seems to
reflect a rationalization of a sign which was already present,
but did not reflect any difference in pronunciation.

In MHG /s/ was also used initially before vowels and medially
between vowels, MHG sünde, lese en. In NHG this corresponds to a
voiced alveolar fricative [z] but the spelling has not changed.

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21) For some UG speakers the resultant sound is also longer than
the voiced sound, SDS II, map 182, Keller 1961, 49.

22) Grosse 1967, 126.

23) German school children make mistakes in the use of s, B and
ss, e.g. writing das for daB, Füsse for FüBe.
What value can we ascribe to MHG /s/ in these positions? Medially it contrasted with /z/ and /ss/. lesen, messe, bezzer, and in this position it may have been voiced even in OHG. Since the other voiceless fricative Germanic /s/ became voiced medially and was spelt /z/, MHG short vowels are lengthened before medial /z/ and, since it will be shown that short vowels were only lengthened before single voiced consonants, this a pointer to the fact that MHG medial /s/ was voiced at that time. Some scholars use the evidence that since OHG medial /s/ is rendered s and z in Slavonic this is evidence not only for the pre-dorsal character OHG /s/ but also for the fact that it is voiced. In standard NSG there is an opposition between voiced and voiceless alveolar fricatives medially between vowels, after long vowels and diphthongs: Fliesen:fließen, Masern:Maße, reiben:reisen, after short vowels only the voiceless fricative occurs. In most CG and UG dialects, apart from High Alemannic and Upper Bavarian, MHG medial /s/ and /z/ have merged in a semi-fortis sound. This is the area of the consonant lenition which affects fricatives as well as stops. It has been shown that at least in Low Alemannic the merger of medial /s/ and /z/ did not take place until after the first part of the sixteenth century, since Murner clearly distinguished them. Perhaps it did not even take place until the seventeenth century. The merger of medial /s/ and /z/ had

24) Schwarz 1926, 14 ff; Lessiak 1933, 87.
25) Lessiak ibid., 13 (see 5.2.2).
26) Philipp 1968, 166.
been effected in Upper Saxon speech in the eighteenth century, since rhymes like Riesen: fließen are used, and Gottsched, in his letter portraying the worst type of colloquial speech, uses spellings such as disse for diese and kraussen for großen. Otherwise MHG medial /s/ is always written s: kewesen, wasen. 27 This merger is, however, omitted by Bergmann when talking about 'obersächsische Umgangssprache' but it is clear from the evidence presented that it has taken place. Klopstock gives us direct evidence that the two sounds have merged, if only in the speech of some people: 28 "daß ss zwischen zwei Selbstlauten wird ausgesprochen Flissen, befliessen. Dies können gleichwohl in gewissen Gegenden so gar die Grammatiker nicht von Flisen unterscheiden". In North Germany and particularly in Berlin a clear distinction is made between voiced [z] and voiceless [s] medially. 29 This pronunciation has been the model for the standard language, coupled with the fact that the two fricatives are usually distinguished in writing. Since this merger in the dialects took place after a written standard had been established, and since it did not reflect the spelling, it was considered substandard and not a prestige pronunciation.

Medially after labial and alveolar nasals MHG has no contrast between /s/ and /z/, only the voiced /z/ occurs in the standard:

27) Becker/Bergmann 1969, 147.
28) Klopstock 9, 378.
29) Lasch 1928, 259. In Berlin there was an extra source for a voiceless [s], the assimilation of MHG hs to ss, e.g. wassen, MHG wahaßen.
Gänse, Binse, Gesimse. In Gänse, the [z] corresponds to MHG /s/;
gense, but in Binse, Gesimse it corresponds to MHG /s/ binez,
gesimeze. Through the loss of unstressed e, MHG /z/ came to
stand after /n/ and /m/ and MHG /s/ and /z/ merged in this
position. This development has also occurred in NHG emsig,
Gemse, Simse. The number of words affected is small, but the
development shows no exceptions.

5.4.2. The voicing of MHG initial /s/

MHG /s/ initially before vowels presents a slightly different
case in that it only contrasts with the affricate /ts/ written z,
and in the NHG standard Siebs prescribes a voiced value to it,
[z]. This follows North German pronunciation and there is no
phonological reason why it could not be realized as a voiceless
or semi-fortis [s], which indeed happens in South Germany. In
Switzerland it is recommended that initial z be pronounced
'stimmlos-schwach' initially before vowels and medially. In
the pronunciation of many educated speakers in South Germany and
Austria a clear opposition is maintained between NHG /s/ and /z/
medially in pairs such as reiben : reisen, but initially NHG /z/
is pronounced voiceless, or at least as a semi-fortis sound which
is phonetically more similar to the fricative in reiben, and
would thus be regarded as a member of the /s/ phoneme and not of
the /z/ phoneme as in the standard. When did initial MHG /s/
become voiced? Since there is considerable latitude in its

pronunciation in NHG this same freedom could basically have
obtained in NHG, that is voiced, perhaps in CG and voiceless in
UG. There is possible evidence from a CG medieval Yiddish poem
from the end of the fourteenth century that the initial NHG /s/
was already voiced then, since the Hebrew character Sajn is
used for initial NHG /s/ before vowels and medial NHG /s/; whereas
the Hebrew sign Sin is used for NHG /s/ before consonants and
when doubled, as well as for /sz/. For the alveo-palatal NHG /ʃ/
the sign Schin is used. The voiced pronunciation of NHG
initial /s/ before vowels, which is prescribed by Siebs, is another
example of a North German feature being accepted as standard.

5.4.3 The partial merger of NHG /s/ and /ʃ/
In NHG /ʃ/ occurred initially before /r/ and vowels, schändet,
schreiben, medially after /l/, /r/ and /n/: valsche, verschen,
wünschen and finally after /l/ and /n/: valsch, wunsch. In native
words in NHG /ʃ/ still appears initially before vowels and /r/:
schön, schreiben. But it also appears before any initial
consonant except /k/: schwimmen, schlafen, schnell, später, stehen.
Except before /t/ and /p/ the NHG phoneme /ʃ/ is spelt sch. This
change has not resulted in the loss or gain of any phoneme but
represents a change in the distribution of NHG /ʃ/, which has
become more frequent due to its merger with NHG /s/ before initial
consonants. The use of the grapheme sch for /ʃ/ initially before,
/l, m, n, w/ starts in Alemannic sources in the thirteenth century.

32) Norman, Schwarz, Ganz (ed.) 1964, para. 20 and 37.
and by 1500 it has become universal in both UG and CG sources.\textsuperscript{33} The question that naturally arises is why \textit{sch} does not appear in writing before /p/ and /t/ in MHG? In the South West German dialects the 'breite Aussprache', as Viëtor calls the pronunciation of s as [ʃ] before /t/ and /p/,\textsuperscript{34} occurs not only before initial /p, t/, as in the standard, but also before medial /p, t/ as in \textit{fescht, kaschper}.\textsuperscript{35} This pronunciation is typical of present day Alemannic dialects but it also seems that, at least before /t/, it was widespread in Bavarian at one time and was thus a general UG characteristic.\textsuperscript{36} The spelling with \textit{sch} was probably used before /l, m, n, w/ since it already existed before /r/ in MHG,\textsuperscript{37} and there was also no orthographic need to designate the pronunciation of initial and medial st, sp as [ʃt], [ʃp] since Alemannic speakers would automatically realise the sign s as [ʃ] before any consonant, except where a morpheme boundary intervened. The use of \textit{sch} does appear, but only sporadically in Alemannic in the fourteenth and fifteenth century, but it does not seem to have been accepted into the standard.\textsuperscript{38} Fabian Franck makes the following comment on this:\textsuperscript{39} "Widderumb aber ist dis kein abbruch/ sondern für gnuß/ und ein zierd

\begin{itemize}
\item \textsuperscript{33} Aron 1893, 225-271.
\item \textsuperscript{34} Viëtor 1904, 191.
\item \textsuperscript{35} DSA map 23, Jutz 1931, 199.
\item \textsuperscript{36} Freudenberg 1965, 300.
\item \textsuperscript{37} V. Moser 1951, para. 147, 1b, Anm. 6.
\item \textsuperscript{38} V. Moser ibid., para. 147, 2, Anm. 16.
\item \textsuperscript{39} Müller 1882, 104.
\end{itemize}
angenommen/ so weilands ettliche buchstaben übersehen werden/
as da ch jnn diesen unnd der gleichen/ sprach sprech/ storch/
straus/ für schprach/ sprech/ schtorsch/ schtraus u. Und ist
eine gemeine regel. Wenns p oder t nach dem sch/ von rechte
gefordert/ sowirds ch vermieden/ und das p oder t schlechts
zunehst ans s gesetzt/ wie itzt gesehen". Opposed to this
extreme of [ʃ] before both initial and medial /t/ and /p/ is
another extreme, the 'spitze Aussprache', where NHG /s/ is only
pronounced as [ʃ] before initial /l, m, n, r, w/, but before /t/
and /p/ as [s], regardless of position. 40 This is characteristic
of the High German spoken in areas where Low German was previous-
ly universal, except Eastphalia, Brandenburg including Berlin,
and East Prussia, where initial st, sp is pronounced [ʃt, ʃp]. In
Berlin the pronunciation of st, sp as [ʃt], [ʃp] can be traced
back as far as the sixteenth century. 41 The standard represents
a compromise between these two extremes, with [ʃt, ʃp] initially
and [st, sp] medially and finally. How did this compromise
arise? It seems probable that it is the result of the mixture of
UG and LG settlers in ECG in the Middle Ages. Since East Prussia
was colonized after 1300 it must have arisen before then, because
High Prussian represents the compromise pronunciation. 42 The
change of spelling was not strictly necessary but this develop-
ment of s to sch demonstrates that OHG s was probably pronounced

40) Vietor 1904, 191.
41) Lasch 1928, 56.
42) Kuck/Wiesinger 1965, para. 75.
as [ʃ] in certain positions. It has been suggested that with the simplification of consonant clusters medial [ʃt] merged with [ʃ] from OHG sk in some dialects. Today the medial clusters [ʃt] and [ʃp] have become characteristic of Alemannic dialects. In the case of the word Wurscht meaning 'egal' in the phrase: Es ist mir Wurscht the [ʃt] pronunciation has been extended to occur in colloquial speech in all parts of Germany. Both the spelling wurst and wurtscht are recorded. After medial and final /r/ in NHG /s/ and /ʃ/ also contrasted: vorschen: kirse, bars: marsch. In this position a merger between the two sounds in /ʃ/ is assumed for NHG, NHG forschen, Kirsche, Barsch, marsch. This did not occur if the final -s occurred after a morpheme boundary, thus in NHG there is no merger in des Haars, versehen, übersehen, ersehen. There are however a number of words which are recorded in OHG and NHG which do not show medial and final [ʃʃ], rşch, in NHG: Pfirsich, Fersae, Färse 'heifer', Kirse 'millet', Vers. It has been suggested that these exceptions can be explained by saying that after /r/ only West Germanic ss became [ʃ] not single s, or that only in the cases where the /s/ after /r/ was voiceless did it become [ʃ]. The exceptions may

43) Freudenberg 1965, 305.
44) Kupper 1958, 469. The form wurchscht seems to have arisen among students in Berlin in the early nineteenth century and to have become part of Berlin colloquial speech.
45) Penzl 1968, 348. Marsch is not recorded until the 17th. c. both in the meanings 'march' and 'bog', Klüse/Kitzka 462f.
46) Lessiak 1933, 97; Kranzmayer 1956, 90.
be borrowings from LG. The feminine Hirse is first used by Schottel, and is almost certainly a LG import. The sequence [rz] in NHG comes, in some cases, from later Romance loan words: Hörse, Mörser and exists in modern formations like morsein 'to transmit by morse code,' but there still remains the problem of the exceptions. That these words had only a single or voiced [z] in MHG and all the others like Bursche, Kirsche, herrschen, Knirschen had a voiceless or double [s] is unlikely, since there is no trace of this in the spelling. Some are native words and some are old borrowings. Of the exceptions, Hirse and Vers are recorded in Early NHG with sch. It seems more likely that the exceptions represent a random selection by the standard language at a time when the new sequence [rz], as in Börse, was being accepted by the language. The forms Ferse, Farse, Hirse, Pfirsich, Verse were accepted along with the loan words Borse, Mörser. As we have seen, if Verse and Hirse had variants with [rʃ], rsch, then the other words may also have had variants. In fact most of them occur with [rʃ], rsch, in UG dialects. Ferse appears as Versche in Luther but the form ferse is used by other writers. Through the loss of unstressed e in MHG, /z/ came to stand after /r/ in the MHG word hirz, hirz, and the reflex of MHG /z/ in this position is [ʃ] sch: Hirsch.

48) Karstien 1939, 143.
49) Schottel 1337.
50) Dt. Wb. 4, 2, 1571.
51) Schwarz 1926, 31f.
52) Dt. Wb. 3, 1543.
This seems to be the only example of /ʃ/ from MHG /z/ in this position, and therefore would be an example of a 'regular' sound change applying to one word!

The occurrence of /ʃ/ is largely predictable in NHG, in that it occurs initially before consonants, medially between vowels and medially and finally after /l, r, m, n/. It contrasts only with /z/ initially before vowels, and /z/ and /s/ finally after vowels. Consequently it has been suggested that /s/ might be derived from an underlying /ʃ/. Since in the positions where /ʃ/ contrasts with either /s/ or /z/ no consonant cluster /sk/ occurs in native words, /sk/ could be posited as the underlying representation. Thus surface forms like Schule, waschen, falsch would have the underlying forms /sku:l/, /vasken/, /falsk/. Where /ʃ/ occurs before or after consonants, it is to be regarded as underlying /s/: e.g. /snel/, /bars/, /slim/, /sver/, /sreiben/.

There is in the grammar a general phonological rule which turns /s/ into /ʃ/ before or after any consonant, as long as a morpheme boundary does not intervene. Wurzel formulates the rule as follows:

\[
\begin{align*}
\text{+ cor} & \quad \text{+ cont} \\
\text{- voice} & \quad \text{- cons} \quad \text{+ obstr} \\
\text{+ high} & \quad \text{+ high} \\
\text{Rule (c)} & \quad \text{+ cons} \\
\end{align*}
\]

This produces the forms /sku:l/, /vasken/, /falsk/, /bars/.

53) Wurzel 1970, 226f.; Vennemann 1968 b, 111-131 has a slightly different solution. The features in this rule have been translated, as is the case with all the rules discussed in this work.
Then there is a further rule needed to derive the surface forms, i.e. the dropping of the /k/ after /ʃ/:

\[
[\text{+ obstr}] \quad \text{---->} \quad \emptyset \quad \text{[+ obstr]}
\]

The rule does not apply to foreign words like Skat, Skandal. A more acceptable solution would be to retain /ʃ/ in the underlying forms, i.e. /ʃu:la/, /vəʃən/, but keep underlying /snel/, /slim/, and have a redundancy rule that specifies that initially before a consonant an alveolar fricative is always [+ high]. This solution is reflected in the spelling proposed by the author of the High Dutch Minerva, where it is suggested that initial and medial sch before vowels be always spelt sh, sheepfer, fleishes, but NHG sch before initial consonants be always spelt s, auferstandan, sweger, spil.\(^5\) This rule obviously reflects the historical change as we have postulated it.

5.4.4 Changes in the incidence of MHG /z/

In the history of the development of MHG /s/ and /z/ there are a few anomalous forms which need to be mentioned individually. They do not involve any change in the distribution of any phoneme, but simply in its incidence, i.e. in its occurrences in individual words. NHG Pilze is taken as representing MHG bülez, cf. Latin boletus. In this word the MHG fricative /z/ has been replaced by an affricate. The first recorded spelling with tz is in the fourteenth century and the affricate in MHG may simply be a

\(^5\) High Dutch Minerva 1680, 11.
spelling pronunciation. It must also be said that it is a word that is used only in North Germany, the South German word being Schwamm or Schwammerl. The existence of the word Bilsenkraut 'henbane', raises the supposition that to avoid a merger of bülz and bilise, the fricative in bülz was replaced by an affricate. A similar change has taken place in NHG Münze where, possibly the form Moneten and perhaps, though semantically different, the form Minze 'peppermint' may have influenced the replacing of a fricative by an affricate. But the details are far from clear and we can only conjecture. NHG Gischt would seem to be the only word in NHG where sch occurs before a final stop which is not a verbal ending, as in mischt. NHG has two verbs connected with it, jessen and rischen and it is a derivation from the latter. The sch in Gischt first appears in the seventeenth century. It does not seem to be a borrowing from South West German dialects.

Some words in NHG show, exceptionally, a voiced [z] as the reflex of medial NHG /z/ between vowels where the regular correspondence should be a voiceless [s]: Lloses, Los, Kreises, Kreis, Ameise, mausen, Verweis, verweisen. The verb may be a secondary derivation from the noun. The cause of this change is apparently the spelling. All these words were at some time

56) Kretschmer 1918, 372f.
57) Pilz, Dt. Wb. 7, 1857; Münze, Dt. Wb. 6, 2703.
58) Gischt, Dt. Wb. 4, 1, 4, 7564.
written with \( \beta \), in some cases even into the eighteenth century, but probably they also became written with \( s \) and pronounced \([z]\). These are all cases of spelling pronunciations which have found their way into the standard. Probably these words represent a tendency to try and correct the overuse of \( \beta \) and are, in fact, hypercorrect spellings.

5.4.5 The emergence of the phoneme /ʒ/

The phoneme /ʒ/ in NMG is found exclusively in loan words. It is spelt \( j \) initially before front vowels, Giro, Gelee, or before unstressed \([a]\), Etage, Page, Garage. Initially before back vowels it is spelt \( j \), Jalousie, Journal. In standard NMG it forms a voiced partner to the voiceless /ʃ/, but there seem to be no minimal pairs. Moulton cites the near minimal pair Giro : schier to show that they contrast. The distribution of /ʒ/ is limited. Initially it occurs only before vowels, Genie, Jacket. Medially it appears only after long vowels, Page, and after /ŋ/, rangieren 'arrange, shunt', Orange. It does not normally enter a phonological alternation with its voiceless counterpart /ʃ/.

One possible exception is the colour term beige. When this is inflected it will contain a medial voiced /ʒ/, beigenfarbig, but the word beige on its own is either pronounced [beːʃ], [beːʒ] or [beːʃ]. It is not clear how widespread the last pronunciation is. If it is used frequently it means that at least for

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59) Kreis, Dt. Wb. 5, 2144; LoR, Dt. Wb. 6; 1153, mausen, Dt. Wb. 6, 1831; Verweis, Dt. Wb. 12, 2182.

60) Moulton 1962, 22.

61) DAW 155.

62) WDA 174.
some speakers the medial /ʒ/ is devoiced in word-final position for this word. Apart from the possible example of beige, the phoneme /ʒ/ is not involved in any phonological alternations. Many linguists disregard it when describing the sound system of NHG. In colloquial speech certainly it is usually devoiced and pronounced /ʃ/. Duden Grammatik regards this as part of a 'Nicht_hochlautung' pronunciation.

Since many speakers of German use the phoneme /ʒ/ a historical phonological study cannot ignore its existence and must explain its occurrence. It was borrowed into the standard language through the adoption of French loan words. Since it forms a voiced partner for the voiceless /ʃ/, it was more easily accepted to fill this particular 'hole in the pattern'. When did this happen? Most of the words containing /ʒ/ in NHG are quite recent borrowings. The sound was certainly not present in MHG: Gelee, Genre, Regie, Garage, generöse are not recorded in the Dt. Wb., but some are considerably older. The two words Giraffe and Page are recorded in 1497, but spelt schiraff, and pasche. Courage occurs first in Simplicissimus spelt Courasche. Journal also appeared first in the seventeenth century. The

63) Werner 1972, 47: "Ein /z/ erscheint nur in (frz.) Fremdwörtern ... so gehört es nur bedingt ins dt, Phoneminventar". Vennemann 1968, Philipp and Wurzel 1970 do not regard it as part of the NHG phonological system.

64) Giraffe, Dt. Wb. 4, 1, 4, 7544; Page, Dt. Wb. 7, 1407.

65) Dt. Wb. 2, 637.

66) Dt. Wb. 4, 2, 2338.
word *Giro* was also first recorded in the seventeenth century, but only came into wide-spread use at the end of the nineteenth century.  

67 *Genie* is, of course, a key word of the eighteenth century.  

68 All these words were spelt with *sch* when they first appeared. Only later does the spelling with *s* or *i* come into use, in order to make them like their French forms. The integration of */ʒ/* into the sound system of German has taken a long time and has occurred gradually. As the number of loans containing this sound increased, and knowledge of French spelling and pronunciation became more widespread, the loans came to be pronounced with the French sound */ʒ/*.

67) Dt. Wb. 4, 1, 4, 7549.
68) Dt. Wb. 4, 1, 2, 3396.
5.5. THE PALATAL AND VELAR FRICATIVES AND NHG /h/

5.5.1 The development of the NHG allophonic variation [x] - [q]

Phoneticians recognize that there is a phonetic difference between the NHG fricative written ch in nicht and that in Nacht. In nicht it is considered to be palatal, and is symbolized [q], whereas in Nacht it is considered to be velar, symbolized [x]. They are both voiceless. Although it is agreed that this phonetic difference exists, there is disagreement about its status. Are [x] and [q] phonemes or allophones? For the most part they are in complementary distribution. The voiceless velar fricative occurs after low and back vowels, Bach, Loch, Buch, Bucht, Bauch, and the palatal fricative [q] occurs after front vowels, dich, recht, Bücher, tüchtig, möchte, Seuche. However there appear to be minimal pairs where [x] and [q] contrast, tauchen : Tauchen 'little rope'; rauchen : Frauchen; Kuchen : Kühchen. On the basis of these pairs it would seem feasible to set up the phonemes /x/ and /q/. Houlton considers setting up [q] as a separate phoneme but discounts it in favour of using a phoneme of juncture, /+/. This may have an allophone comprising a pause or a zero allophone. Thus NHG Kuchen is phonemically /'kuːxen/, and Kühchen is phonemically /+'kuː+xen/. The allophone [q] appears after front vowels and the juncture phoneme /+/. This type of analysis has been criticized on several

2) There is an account of the secondary literature in Werner 1972, 46-50.
3) Moulton 1947, 223.
grounds. In a later work Houlton sets up two separate phonemes, /x/ and /q/. However, he says that for teaching purposes, both solutions, that of /x/ and /q/ as separate phonemes and that with them as allophones, are needed. No one else seems to have seriously considered setting up /x/ and /q/ as separate phonemes for NHG. Trim has suggested that [x], [q] and [h] could be combined into one phoneme, but Daniel Jones does not accept this since there are numerous words with initial [q] in NHG even though they are foreign words. The apparent contrast of [x] and [q] can be easily dealt with if grammatical prerequisites are allowed in phonological analysis. Whenever [q] occurs after a back vowel it is always in the diminutive suffix. We can now say that the allophone [q] appears after front vowels, and initially in words, e.g. Chemie, or in morphemes, e.g. [-qon], and after /n, l/ and /r/, manch, solch, durch. This solution still leaves some problems unanswered: e.g. how does one regard the syllable initial [x] in Wacholder, Achat? Generative phonologists are agreed that for NHG only an underlying /x/ need be posited. Both [q] and [h] can be derived from this: [q] by a /x/ -fronting rule, and [h] by a /x/ -weakening rule. In our account we will consider [x] and [q] to be allophones of one phoneme, /x/, in NHG.

4) Haas 1954, 58f.
5) Houlton 1962, 22f.
6) Trim 1951, 41.
7) Jones 1962, 69.
8) Pike 1947, 170-172.
It is uncertain when the allophonic variation between palatal [ɲ] and velar [x] first came into being. Vietor maintains that the velar sound is the older, and cites grammarians and ortho-eists who do not make any distinction between them. The quotations which he uses are, in fact, inconclusive - the only conclusion that may be drawn from them is that the writers seem to be unaware of any difference between velar and palatal fricatives. Kolroß describes the articulation of the digraph ch: "So hat das ch sin uBsprechen uB dem mund/ glych sam einer in die hand khucht oder wie ein gans thut die junge hat/ so man gegen ir geedt". Fuchsperger merely gives a sentence with examples of the sounds: "Ch macht den Pruckschlager oder holtzklieber durch den schlegelschlag keichen/krachen/ und wachen den Storchen". Even Ickelsamer, who describes most of the consonants quite adequately, does not mention ch. The only clue he gives to its pronunciation is: "... in den wórtern/ machen/ rechen u. da das /ch/ bey ainander muß bleyben/ und lütet doch auch zu einer end silben hart/ also, mach en/ und gibt der nachgeende Vocal ainen harten anfang". By 'hart' he presumably means voiceless since he comments elsewhere: "allain das /p/ herter ist dann das /b/". Gottsched does not comment

10) Vietor 1904, para. 77, Anm. 1.
11) Müller 1880, 76.
12) Müller ibid., 173.
13) Müller ibid., 145.
14) Müller ibid., 130.
on any difference between [x] and [ç]. He regards ch as representing two h's, as ck represents two k's.\textsuperscript{15} It is not until the nineteenth century and the beginning of scientific phonetic study that the difference in place of articulation between [x] and [ç] was noticed.

If the observations of native speakers of the language do not help, neither does the spelling, since the palato-velar phoneme /x/ is spelt ch in every position in NHG and the spelling has not varied much since OHG when the signs h, hh as well ch were used.\textsuperscript{16} The signs ch and h seem to have been used in free variation in MHG before consonants and finally between vowels they contrasted however ch and hh were used to designate MHG /x/, whereas h was used for the aspirate MHG /h/. Since this difference in place of articulation is only allophonic, phonetically untrained native speakers are very often unaware of it) the sixteenth century grammarians cannot be too severely criticized for not having noticed it. Also the palatal sound did not occur in any major foreign language as a separate phoneme. This is another reason why they would be unlikely to be aware of its existence. We thus seem to have no direct evidence to tell us how old the allophonic variation [x] - [ç] is.

We can, however, say that it is probably not very old, since it does not exist in many German dialects. In saying this we are

\begin{itemize}
\item \textsuperscript{15} Gottsched 52f.
\item \textsuperscript{16} Braune/Mitzka 1961, para. 145.
\end{itemize}
assuming that the palatal pronunciation of MHG /x/ started at one point in the German speaking area and spread to others.

It can be seen that the Alemannic dialects in Switzerland and also South Germany do not show this variation. The exact extent of dialects with only velar [x] after both front and back vowels has not been ascertained exactly, but it seems to lie within the area delimited in the north by the isogloss kint/khint. The dialects outside this area do show the palatal-velar variation and in some cases, notably in the middle Rhineland, words like [dax] - [deqar] show the alternation [dax] - [deqar] where probably an earlier [q] has merged with MHG /ʃ/. From the absence of the [x] - [q] variation in some dialects, it seems justified to assume that at some time in the past, perhaps in MHG or OHG, the allophonic variation [x] - [q] did not exist but that only [x] appeared after both front and back vowels.

How then did this velar fricative [x] develop a palatal allophone after front vowels? The most plausible answer is that it is simply a case of the assimilation of the fricative to the point of articulation of the preceding vowel: after front vowels a fronted variation was created, while after back vowels the back variant remained. The whole process would then be due to ease of articulation. However there are two problems: firstly why was this assimilation not carried out universally in

17) Jutz 1931, 208; DSA map 17.
all dialects, and also in other Germanic languages which have velar fricatives, albeit from different sources, such as Dutch? Secondly, why does the front variant [ɛ] also occur after a back consonant, the uvular [R] as in durch, Furche, Kirche?

The reason why the assimilation of [x] to [ɛ] is not universal lies in the sound system as a whole. One of the characteristics of the Alemannic dialects of Switzerland and Dutch, which have only a velar fricative and no allophonic variation [x] - [ɛ], is that they both have a velar fricative in initial position before vowels. In this position the velar fricative is always fortis in Alemannic, but in Dutch it is sometimes voiced and sometimes voiceless. In those dialects, including standard NHG, where [x] has become [ɛ] or has developed further to [ʃ], there is no initial pre-vocalic velar fricative. Also the velar fricative in Dutch and Alemannic does not change its place of articulation before front vowels. Perhaps this non-variation is a sign that the phoneme /x/ is very stable in these languages. It is certainly a characteristic sign of Dutch and Swiss German, since in this position it is a difficult sound to acquire for speakers of other Germanic languages. In those dialects, except Bavarian, which have the allophonic variation [x] - [ɛ], and the [ɛ] has not merged with [ʃ], there is a voiced fricative counterpart, from NHG /ʃ/ medially and finally, which also has palatal and

20) Keller ibid., 51.
velar allophones. Examples will be drawn from Luxemburgisch to illustrate this. In final position only a voiceless [q] and [x] occur: [za:x] 'thing', [frɛç], but medially between vowels the voiced and voiceless sounds contrast: [ʃpiʃəl] : [ziçən] 'to seek', [laːɭən] : [maːxən]. The intervocalic fricatives, particularly the voiced ones, are also sometimes lost: Lux. [jeːər], NHG Jäger, and even the voiceless [x] is lost in colloquial speech, [maːten] becomes [maːn].21 In a large part of the Rhineland the palatal [ç], which in final position may represent Germanic ã as well as k, merges with [ʃ]: Leisch 'funeral', uˈheeflish 'impolite'.22

Casting our glance at other Germanic languages where there are still fricative reflexes of Germanic h, the development of palatal allophones has also occurred. In English, Germanic h has now been lost in all positions except initially before vowels, but it is a well known fact that, even in this position, it is lost in most dialects and colloquial speech. Before it was lost in post-vocalic position, or became [ʃ] as in laugh, cf. NHG lachen, it developed palatal allophones similar to the variation in NHG.23 Since some dialects and languages have the [x] - [ç] variation, whereas others do not, and only have [x], it seems that this assimilation is not purely mechanical, but rather depends on the other sounds in the phonological system.

21) These are forms from Luxembourg informants.
22) Keller 175.
and their distribution. Where there was no longer any initial velar fricative, through the change of Germanic \(x\) to \(h\) initially, and a new velar fricative did not arise, as in Swiss German, from initial Germanic \(k\), then the non-initial velar fricative \([x]\), whether from Germanic \(h\), \(g\) or \(k\), has tended to be assimilated to the preceding vowel and tended either to disappear as in English and some central German dialects or merge with MHG \(/f/\) as in Rhineland and ECG. It has been suggested that the lack of a strongly articulated velar fricative in initial position has led to \([x]\) becoming less strongly articulated and being assimilated to its environment, i.e. to \([\gamma]\), after front vowels, thus creating a closer voiced : voiceless correlation between the voiced palatal fricative and the voiceless palatal fricative.\(^{24}\)

This is diagrammed as:

\[
\begin{array}{c}
\gamma \\
(\gamma \leftarrow x)
\end{array}
\]

This process is still said to be incomplete. The voiced sound \(/\gamma/\) only occurs initially before vowels and the voiceless sound occurs after front vowels and \(\acute{u}, r, n, j\) as well as initially in a few loans like Chemie. The distribution of the two sounds seems to be so different that this suggestion of an assimilation to create a voiceless partner for \(/\gamma/\) must be viewed with scepticism.

Other scholars view the assimilation of \([x]\) to \([\gamma]\) as part of a universal change \([x] > [\gamma] > [\acute{u}] > \emptyset.\(^{25}\) According to this view NHG has

\[\text{References:}\]

\(^{24}\) Lütke 1959, 178-183.

\(^{25}\) Vennemann 1972, 875, fn. 31.
reached the second stage of this development. But Dutch and Alemannic create a difficulty here. Why have not these languages embarked upon the first stage of the universal change? They have, it is true, lost Germanic \( h \) in certain positions, but in some UG dialects NHG medial/\( h \)/has actually merged with NHG /\( x \)/ and has not been lost!\(^{26}\) The velar fricative in Dutch, which represents Germanic \( g \), has remained for a long period of time. Such facts as these make one doubt whether Vennemann's proposal is really a universal change. It does tend to happen but that does not make it a universal law. This assimilation, as has been said, is, in general, an assimilation of a velar to a palatal fricative after palatal vowels. It has been formulated in distinctive features thus:\(^{27}\)

\[
\begin{array}{c}
+ \text{cons} \\
- \text{cor} \\
- \text{ant} \\
+ \text{cont}
\end{array}
\rightarrow [- \text{back}] / [- \text{back}]
\]

This change also happens after /\( r \)/, which is usually uvular in NHG. Wurzel is aware of this problem and postulates as the underlying /\( r \)/ a dental trill, although uvular /\( R \)/ is equally widespread. Underlying dental /\( r \)/ is converted into uvular /\( R \)/ by an optional rule. Since dental /\( r \)/ is [- back] the rule changing underlying /\( x \)/ to [\( ː \)] can be applied even in the context of dental /\( r \)/. After the application of this rule, the optional rule converting /\( r \)/ to /\( R \)/ can be applied giving surface forms

\(^{26}\) Kurath 1965, 34.

\(^{27}\) Vennemann 1968 b, 59; Wurzel 1970, 232.
where palatal [\q] occurs after uvular [\R], e.g. [duRq]. This ordering of the two rules would then reflect the historical order of the changes: first the assimilation of [x] to [q] and then secondly the change of dental /r/ to uvular [R]. However these two rules have completely different results. The change of [x] to [q] is an automatic assimilation of which the native speaker is generally unaware, whereas the change of [r] to [R] is a sound substitution of which most native speakers are aware. An examination of the words in NHG where [q] occurs after /r/ opens up another possibility of interpretation due to the fact that these all have forms with an epenthetic or svarabhakti vowel between r and the velar fricative in OHG, which no longer appears in MHG and NHG spelling.

<table>
<thead>
<tr>
<th>NHG</th>
<th>OHG</th>
</tr>
</thead>
<tbody>
<tr>
<td>durch</td>
<td>durah</td>
</tr>
<tr>
<td>Kirche</td>
<td>kirihha</td>
</tr>
<tr>
<td>Lerche</td>
<td>lērihha</td>
</tr>
<tr>
<td>Pferch 'fold, pen'</td>
<td>pferrich</td>
</tr>
<tr>
<td>Furche</td>
<td>furuh</td>
</tr>
<tr>
<td>horchen</td>
<td>(late OHG) hōrechen</td>
</tr>
</tbody>
</table>

The words schnarchen and Schnorchel have no recorded forms in OHG. The origin of the vowels is twofold: those in OHG kirihha, lērihha, pferrih, were original vowels, whereas those in

28) Wurzel 1970, 234f.; Vennemann 1968 b, does not deal with the articulation of NHG /r/ at all!

29) NHG schnarchen, Kluge/Mitzka 668; NHG Schnorchel is a modern word from N. E. Germany, Ullstein Lexicon 1969, 791.
the other words developed in OHG between \( l \) and \( h \) or \( r \).\(^{30}\) The svarabhakti vowels are not universal in OHG, but they are certainly widespread. In MHG these vowels, whatever their origin, are not represented in orthography at all. Since in MHG there was no contrast between the sequence \( r + \) vowel + \( h \) and \( rh \), the \( r \) before \( h \) may have been pronounced as \([re]\) or even \([ri]\). In NHG there is no direct evidence of such pronunciation\(^{31}\), but it is precisely in those words which had svarabhakti vowels in OHG that the velar \([x]\) has become \([g]\) after the NHG uvular \([R]\). Why were these svarabhakti vowels not written in MHG if they existed then? One reason has already been given. Other possible reasons are: the fact that unstressed \(-e\) was generally not written after \( r \) or \( l \) and secondly, in late MHG in Bavarian there are some instances of svarabhakti vowels after \( r \), though not before \( h \): zoren, turen.\(^{32}\) It seems plausible to assume that MHG \(/x/\), \(ch\), became assimilated \([\mathcal{q}\]) after front and also the non-low central vowel \([e]\). Through the loss of the intervening \([e]\) after \( r \), the palatal \([\mathcal{q}\]) came to stand next to a dental \([r]\), which in NHG has largely been replaced by a uvular \([R]\). Palatalization of MHG \(/x/\) after \([e]\) could also be responsible for the diminutive suffix beginning with \([\mathcal{q}\]), e.g. Kuhchen \(MHG \text{ 'kuoehen}\). This explains historically how such forms as \([\text{ku}:s\mathcal{e}n]\) and \([\text{frau}:s\mathcal{e}n]\) came into being. For those linguists who regard \(/x/\) and \(/\mathcal{q}\/\) as two phonemes

\(^{30}\) Braune/Mitzka 1961, para. 65.

\(^{31}\) The svarabhakti vowels do exist in some dialects, e.g. Alsatian, Atlas Linguistique de L'Alsace, I, map 77.

\(^{32}\) Paul/Noser/Schröbler 1969, para. 25.
in NHG, the loss of unstressed e before the diminutive ending would be the change that has phonemicized them. The NHG palatal allophone [q] also appears after /n/ and /l/. The cluster /lx/ existed in NHG, solche, and, like NHG /rx/, it may have been realized with a svarabhakti vowel [lrx] or [lrix]. Many words with /lx/ in NHG have an svarabhakti vowel in their OHG form, NHG solch, Kelch, OHG solih, kelin. The cluster /nx/ however, did not exist in NHG. Even in NHG there are only a few words where this cluster occurs e.g. Fenchel 'fennel', Münch, München, manch.33 (MNHG manec, for the development of NHG -ec see 5.5.1). All these words have OHG or MHG forms with an intervening vowel between /n/ and /x/, NHG venichel, müneh, OHG tühhön. We are not dealing with forms where there is a morpheme boundary in NHG between the /n/ and /x/, e.g. Söhnen. If the cluster /nx/ had existed in NHG then the palatal [q] would not have developed after it since MHG /nx/ would have been realized phonetically as [nx], with a velar nasal allophone of MHG /n/, which also occurred before the velar stops /g/ and /k/, (see 5.6.1). MHG /x/ developed a palatal [q] allophone except after back vowels and velar consonants. In the case of NHG /nx/ the palatal [q] developed not after the dental /n/ but after unstressed [a].34 This is a further support to our contention

33) In NHG Lynchen the nch is pronounced [nq], DAW 481, but this is a modern word, Kluge/Mitzka 451.

34) Vennemann 1968 b, 144f., assumes an intervening even for his synchronic phonology of German, which is then deleted by a syncopation rule. He also assumes that the underlying form of the suffix -chen is /ik'vn/ . He gives a sample derivation of a diminutive form on p. 146.
that in the case NHG /rx/ (and /lx/), palatal [ɻ] developed not merely after front vowels but after [e] as well. In the case of NHG /rx/ and /lx/ we can only assume unstressed [e] in MHG, but in the case of NHG /nx/ there is direct evidence for [a] in MHG.

5.5.2. The development of the MHG suffix -ec

In NHG the derivational suffix -ig which is used to produce adjectives from nouns and verbs: grasig, willig, is pronounced [ig]. The suffix also appears in nouns such as König, Essig, Reisig 'twigs'. In the last two words it represents MHG -ech, -ich.  

In MHG this suffix was written either -ec or -ic, in normalized MHG texts -ec is the more common form. The vowel may have been [e] or [i]. The final consonant, written c in MHG, was presumably a voiceless stop. It is the same sign used for the final consonant in tac, which in standard and South German has a stop pronunciation. The suffix MHG -ec is pronounced [ik] in South German today. Although the standard prescribes the pronunciation [ik], the shape of the suffix varies according to the adjacent sounds e.g. [könikliq], [königε], [königraeq]. The variant of the suffix [ik], its allomorphic shape, before the suffix -lich is characterized by a final voiceless stop, which is probably how the c in the spelling -ec should be interpreted in MHG. In NHG in final position this voiceless stop pronunciation has been replaced by a voiceless fricative [ɻ]. However this

35) Fleischer 1969, 236-239.
36) Siebs 1958, 82; WDA 56.
change of final MHG [k] to [q] only occurs in this suffix. Words like MHG wec, tac still retain their voiceless stop pronunciation of the reflex of MHG c in NHG. In the North and parts of Central Germany the final c of tac and wec is also pronounced as a voiceless fricative, [tax], [we:]q. The geographical extent of this pronunciation is less than that of [iç] for MHG -ec. This is probably due to the fact that, as a suffix, MHG -ec had an independent existence, and the final consonant was no longer identified with the final consonant of MHG wec or tac. It does present an anomaly in those south German dialects which have [iç] and the standard, in that it is the only morpheme which has an alternation between a medial voiced palato-velar [g], grasige, and a final voiceless palatal fricative [q], crasig. Despite its being an anomaly this alternation in pronunciation has been accepted by NHG, but only in this one suffix. There are no forms which in MHG had -ec and which have [ik] in NHG. Where the suffix [ik] exists in NHG it is in words such as Metrik, Mathematik, which are learned words of recent origin.

The fricative pronunciation of the final consonant in -ig is the result of a compromise borrowing of a widely spread pronunciation into the standard language. It is instructive to note that here we have a case of a sound change conditioned, not phonologically, but grammatically, occurring only in this suffix.

Any morphemic merger with the MHG suffix -ich has been avoided by the development of the suffix -icht, e.g. MHG dornih.

37) Schirmunski 1962, 313.
NHG Dornicht, (see 5.2.3.).

The morphophonemic alternation [g] - [ç] is unique in NHG and does not occur in any dialects. This, however, is only the case with regard to the phonetic realization of the alternation, the spelling shows no alternation, e.g. König, Könige, milchig, milchige. This orthographic unity may be realized differently in the pronunciation of speakers in different regions: some North German speakers will realize this as an alternation between a voiceless and voiced palatal fricative, [koniç], [könije], whereas some South German speakers will realize it as an alternation between a voiceless stop, [koník], [könige]. The standard prescribes a voiceless palatal fricative alternating with a medial voiced stop. This is a contamination of the two, taking the form [könige] from South German, and the form [koniç] from North German, although it is also widespread in CG. Since the standard was agreed upon, many speakers have become accustomed to this compromise alternation, which is an anomaly in NHG morphophonemics, whereas in the eighteenth and nineteenth centuries the spelling alone provided the unity of a written standard language, the g in König, Könige, could be realized by each speaker according to his own regional pronunciation. This is still the case with the allophonic variation [x] - [ç], each allophone being spelt ch. The majority of Germans will use the variation but the Swiss are quite free to use only the allophone [x].
5.3.3. The shift of MHG /xs/ to NHG /ks/

It is usually assumed that the sequence hs was pronounced [xs] in MHG. In NHG chs is pronounced [ks]. The pronunciation [x] is noted by Ickelsamer: "Wa aber ain mitstymmer dem /ch/ volgt so reymbt sichs bas/ alß wachsen/ trachten/ da lautet es vil senfter". 38 The sequence ch has the same pronunciation in these two words, probably that of the velar fricative [x]. Fuchsperger, however, shows that ch before s is pronounced as a stop and he spells the sequence x in some words. "Ein x schnalzt mit der guysel/ Singt wie ein zeysel oder maysen/ unnd lockt den tauben/ wie in den worten/ Nix fux/ fachs/ sechs". 39 The spelling X, which is modeled on Latin, e.g. rex, does not seem to have found nor does the spelling ks or cks for MHG hs. The use of x for [ks] in NHG is mostly restricted to foreign words and names: mixen, Xerxes, but in Axt, Hexe, Faxen 'tricks', it represents MHG hs. The symbols gs and cs were also used in Early NHG for [ks]. 40

Conservatism has prevailed in orthography. There was no need to designate the velar stop as k in this position, since no merger resulted from the shift in pronunciation from fricative stop. Words with /ks/ in NHG, which do not come from MHG chs, are of more recent origin: English loan words: mixen, boxen, or onomatopoeic words, mucksen, drucksen, klecksen, knacksen, which all date from the eighteenth century onwards. 41 Although not

38) Müller 1882, 145.
39) Müller ibid., 173.
40) V. Moser 150, 2.
41) Kluge/Kitzka, drucksen 144, klecksen 374.
explicitly stated in generative studies, it seems that the sequence chs in NHG is taken as representing underlying [ks], but it would be perfectly feasible to postulate underlying [xs], and derive [ks] from it. In the forms sechzeh, sechzig, NHG ch is pronounced [ç] whereas in sechs it is pronounced [k]. On the basis of this alternation a phonological rule could be set up, perhaps called a 'plosivization rule,' since it converts a fricative into a plosive or stop. Other terms such as 'hardening' might be used, since 'plosivization' is rather clumsy. Vennemann uses the term 'Interrupting Rule' for a rule that converts a fricative into a stop. But even this term does not show the process clearly.

It would also have to be stipulated that the rule did not apply if there were a morpheme boundary between [x] and [s], for there are gen. sing. forms such as Dachs, as against Dachs [daks] nom. 'badger'. This could easily be achieved by a simple ordering of the phonological rules, the rule changing [x] to [k] before [s] would apply before the optional rule deleting unstressed schwa in the gen sing.:  

<table>
<thead>
<tr>
<th>Underlying form</th>
<th>[daxs]</th>
<th>[daxas]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plosivization</td>
<td>[daks]</td>
<td>[daxas]</td>
</tr>
<tr>
<td>Schwa deletion</td>
<td>(does not apply)</td>
<td>[daxs]</td>
</tr>
<tr>
<td>Surface forms</td>
<td>[daks]</td>
<td>[daks]</td>
</tr>
</tbody>
</table>

The widespread pronunciation of nächste and höchst 'highest' and

42) Vennemann 1968 b, 211.
the firm Höchst as [ne:kst] and [hɔ:kst] could be then explained as being due to a change in the order of the plosivization and schwa deletion rule.\textsuperscript{43} The latter applying before the former, thus:

- Underlying forms: /hɔːxest/ /neːxest/
- Schwa deletion: [hɔːxst] [neːxst]
- Plosivization: [hɔːkst] [neːkst]

These two adjectives each have long vowels whereas adjectives with short vowels such as schwach and flach, or with diphthongs such as reich, have a fricative in their superlative form.

The pronunciation [ks] tallies with development of MHG /xs/ in Upper Saxony from which region it was adopted by the standard language. It is also found in Bavarian, and partly in Silesian and Bohemian. The other main dialect areas, particularly Low German, show an assimilation of [xs] to [s] as does Dutch, NHG Fuchs, Dutch vos, NHG wachsen, Dutch wassen. The only exception to this is the south of Brandenburg, which has [ks]. Between these two main areas there are transitional zones with [s] and [ks].\textsuperscript{44}

The reason for this change seems to be ease of articulation, the

\textsuperscript{43} King 1969, 44, regards this change as the addition of a morpheme structure constraint, since it goes against the principle that rules which operate within morphemes should also operate across morpheme boundaries (Chomsky and Halle 1968, 364). Vennemann has a rule changing /xs/ to /ks/ but he gives it no name, 1968, 84.

\textsuperscript{44} Wagner 1925/26, 30-46.
combination of a stop and fricative being easier to pronounce than two fricatives. It is, however, a counterexample to the often quoted fact that [x] tends to be weakened. Exactly the same change occurred in English, but it had already happened by Old English, e.g. *wax*, *fox*. No structural reasons seem to exist as to why it should take place, it merely increases the distribution of the stop /k/. Its acceptance by the standard is due to the ECG and Brandenburg dialects having this pronunciation. Frings sees this change of MHG /xs/ to /ks/ as starting in the south east like the NHG diphthongization and spreading south west and north east and west. The other change from [xs] to [s] does affect the spelling in those areas where it occurs. The shift of [xs] to [ks] might be interpreted as an overreaction to the assimilation of [xs] to [s]. The difference chs / s became an important distinguishing mark and the pronunciation [ks] a sign of a prestige variety. There is a large area with [s] in Swabia, and it could be that this is a relic area that the occurrence of chs, [ks] north of it is more recent. Even in Bavarian, which is usually assumed to be a stronghold of the [ks] pronunciation, many rural words e.g. *Deichsel 'shaft', Leuchse 'ladder support', show s in dialect forms, and place names in Early NHG are recorded with ss instead of hs: 1170 *Sassengasse* for Sachsen *gasse*. The pronunciation [s] for [ks] or [xs] seems to have been more widespread than it is now. This change also

45) Campbell 1959, para. 416.
46) Frings 1956, 40.
47) Kranzmayer 1956, 92f.
covers different areas according to different words used to illustrate it. The isogloss ss/ks varies from word to word in the Rhineland: sechs is the northernmost form with [ks], then Ochsen, and then wachsen. This is used by Bach to show that: "Jedes einzelne Wort, und jede einzelne Wortform ihre eigenen Geltungsbereiche, ihre eigenen Grenzen im Sprachraum besitzen". There is need for a detailed examination of records to document this change exactly. Although phonetically due to ease of articulation, phonemically this is only a change in the distribution of MHG /k/ and /x/ and not the number of phonemes in the system. Within morpheme boundaries, NHG /x/ does not occur before /s/. NHG /k/ has now increased its distribution and appears before /s/. Its distribution therefore was increased after the loss of unstressed e when /k/ or /s/ came to stand before /s/, even though there was a morpheme boundary between them, tags, Glücks. The pronunciation [ks] played an important role in identifying a prestige form of German. The Imperial Chanceries also had a similar development to the EGG dialects. The pronunciation [ks] for chs is always listed as being one of the characteristics of the variety of German which was eventually accepted as the standard variety. A sign that [ks] was a prestige pronunciation may be seen in its hypercorrect use in foreign words in Berlin and in North Germany, Eksenz for Essenz, although Lasch tries to explain this phonetically.

48) Bach 1950, 56.
49) Bach 1965, para. 122 a.
50) Lasch 1928, 248.
5.5.4. The loss of MHG medial /h/

It is traditionally assumed that in MHG medial h before vowels was pronounced as an aspirate. In NHG there is no aspirate in this position but the preceding vowel is long, and sometimes (in careful speech or in declamatory style) it is pronounced when followed by [ə]: sehen, as [zeːhən], [zeːhən], [zeːhən]. The evidence for this MHG pronunciation is slender and is rarely outlined, since it always appears before a following vowel, the letter h is said to be pronounced as an aspirate in syllable initial position, parallel to cases like hant, where it is in word-initial position. Penzl assumes a lenis velar fricative for OHG h medially, since there is a parallel voicing of Germanic [f] to [v] and Germanic [s] to [z], although in the latter case, like that of h, there is no change of spelling. The dialects likewise have no medial aspirate corresponding to MHG /h/. In Upper Bavarian, however, MHG /h/ and /x/ are both represented by a velar fricative [x], e.g. laixen corresponds to both NHG leihen and Leichen. Orthopasts and grammarians describe the pronunciation of h as "ein scharpfer Atem/ wie man in die hende haucht", and "wie man mit eynem starcken athem in die hendt haucht", but this seems to refer only to the pronunciation of initial h. Such comments as do exist on medial h show that it

51) Paul/Mitzka 1953, para. 97.
53) Kurath 1965, 34.
54) Müller 1882, 114.
is largely superfluous or, since it is used, it must somehow show that the vowel preceding it is pronounced 'scharpf'.

These comments certainly do tell us that medial $h$ was probably not pronounced in the sixteenth century, but whether this loss happened earlier we cannot be sure. By Gottsched's time medial $h$ was definitely not pronounced: "In der Mitte nach einem Selbstlaute, und vor einem Mitlauter, wird es bis weilen nicht gehört, als in führen, ....Uhr".\textsuperscript{55}

In MHG some clue as to the pronunciation of medial $h$ may be found in the fact that it alternates with both $ch$ and $g$. The parts of the MHG verbs \textit{sehen} and \textit{ziehen} illustrate this: \textit{sehen} sihe, sach, sähen, gesehen, ziehen, ziuhe, zoch, zugen, gezogen.

The past tense sing. of both MHG \textit{sehen} and \textit{brechen} end in the same consonant sach, brach and these two verbs frequently rhyme in MHG. In NHG, however, the past tense of \textit{sehen} is sah[zaː], with no trace of any velar fricative in final position, whereas the past tense of \textit{brechen} is brach, which retains the velar fricative. It seems implausible that NHG $ch$ should alternate with nothing at all, and therefore it seems safe to assume that MHG medial $h$ was pronounced with some sort of friction, probably glottal or velar. This alternation of final $ch$ and medial $h$ is also to be seen in nouns and adjectives in MHG: schuoch, schuohes, höch, höhes. In NHG the only relic of this alternation is to be found in the adjective höch with its inflected

\textsuperscript{55) Gottsched 33.}
forms hohe. The majority of words in MHG with medial h are word forms which alternate with forms with ch in final position. The loss of medial h is, historically, simply a loss before unstressed [e] and then the extension, or generalization, of the interior form with no h, [ze:] - to final position, which in turn ousted the form with ch, thus eliminating the alternation h - ch, except in the case of hoch. This alternation is still present in derivation, e.g. schmähen, Schmach. 56 NHG nähe has forms with a palatal fricative or stop before -st in nächste, demnächst but the comparative form is näher, with no fricative. In MHG the positive form was näch, which is still present in NHG Nachbar, but is now morphologically unrelated to the adjective. The final -ch MHG näch 'near' may have been dropped to avoid a morphemic merger with näch 'after, to'. The loss of h cannot simply be formulated as a loss before another morpheme, since h is lost in Zähre, MHG zähere, zehr, MHG zehe, Gemahl, MHG gemahel, Stahl, MHG stahel, Ahre, MHG aher, erwähnen, MHG gewähnen, Fehde, MHG vōhede, Dohle, MHG tāhele, where the [e] plus consonant is not a morpheme. In all these examples the following [e] is never pronounced, even in careful speech. Other adjectives in NHG, such as jäh, zäh, had forms ending in unstressed e in MHG, jehe, zehe, and the NHG forms are the result of a regular loss of h before unstressed e. The adjective brach is a recent formation and does

56) Kiparsky 1972, 208. In a generative description, this leveling out of the forms with h in inflection would be described as rule loss. It can, however, be adequately described as levelling.
not represent a retention of word final NHG ch. The NHG adjectives fröh, früh owe their final h in spelling to the use of h as a length sign: the NHG forms were vro, vru. The NHG adjective rüch 'hairy' is represented in NHG by both rauch and rauh. In the latter form it has developed the meaning 'raw,' although in the former it still means 'shaggy' but is mostly used in compounds e.g. rauchfölig, Rauchwerk. Here the alternation h-ch has led to the use of both forms with different meanings. The basic form ending in ch has now become restricted in use. The words noch and doch were not restructured, since although the ch reflects Germanic h, these words had no inflected forms with the medial h. The levelling out of medial h also occurred in strong verbs: e.g. MHG class I: lēhen, lōch, gedēhen, gedōh, NHG lieh, gedieh, Class 2: fliehen, vlōch, NHG floh, Class V: sehen, sach, geschehen, geschach, NHG sah, geschah. In the case of NHG ziehen, zōch, the ch was replaced by g of the past tense pl. and past participle, but this did not happen in the case of gedēhen, where the old past participle with g, gediegen is retained as an adjective. After the loss of unstressed e in the second and third person sing. of the present these verbs changed the h to ch in morpheme final position. This can be clearly seen from Early NHG such as: es geschicht, er fleucht. Later, however, the forms with ch

57) DE 79.
59) Paul ibid.
were replaced by those with h: geschieht, flieht. The h-ch alternation has been eliminated from the inflection of NHG, except for the isolated example of hoch, höher. It has not been eliminated from the grammar in that it exists in word formation: schmählen, Schmach, sehen, Sicht, fliehen, Flucht. All these examples, except Schmach, show an alternation of h-ch before t and this is part of a more general phonological process, whereby all intervocalic voiced obstruents become voiceless fricatives before the derivational suffix t, e.g. graben, Gruft, tragen, Tracht. Being part of a more general process is what has led the h-ch alternation being retained in NHG derivation.

Generative descriptions of German have used this alternation to postulate an underlying voiced velar fricative /ɣ/ which becomes voiceless before the suffix t, and is eliminated in morpheme final position before pause, otherwise from verbs like glühen, nähen, nouns like *Glucht and *Nacht instead of Glut and Naht, would be formed. However this could easily be avoided by specifying that the only verbs with underlying forms like /fli:/, which have an [x] inserted before t in derived nouns, are strong verbs. If this is done then the underlying voiced velar fricative /ɣ/ could be eliminated from the consonant inventory.

60) Gottsched 335, 344, has forms with ch and h but he prefers forms such as sehst.
62) Vennemann 1968 b, 217, also assumes an underlying /ɣ/, 217. Wurzel 1970, 248, admits that /ɣ/ only has a peripheral position in the consonant system of NHG.
In NHG /h/ generally only occurs in word initial position but there are three apparent exceptions: Ahorn, Uhu, and Oheim. The word Oheim has now been replaced by Onkel. The seeming occurrence of /h/ medially in Ahorn is probably by analogy with Horn, and although the word is a morphemic and semantic unit, nevertheless the /h/ is felt to be in syllable initial position. The same could be said of Uhu, which word form today has a wide circulation as the brand-name of an adhesive, even outside Germany. Since /h/ only occurs initially before vowels, generative phonologists derive it from underlying /x/ which does not occur initially before vowels except in foreign names. This solution is not the only one that could be suggested. In a case like fliehen, Flucht, underlying /h/ could be posited /fli:h/, which is then eliminated in morpheme final position before a pause. This is rejected by Wurzel, since it would complicate the phonological entries in the lexicon by requiring more phonological features.

Of the suffixes in NHG with initial h, -haft, -heit, only the latter alternates with a form with initial k: Bosheit, Sauberkeit. These two forms are in complementary distribution, -keit occurs

63) Mitzka 1951, 10ff.
64) In Early NHG Uhu is recorded as Huhu, which is obviously an onomatopoetic word, Dt. Wb. 11, 2, 749.
67) Fleischer 1969, 139.
after derived adjectives ending in -ig, -isch, -lich, -bar, -sam, and after simple adjectives ending in unstressed -el, and -er. There are only seven exceptions to this. In a generative treatment the initial [i] and [k] of the allomorphs -heit, -keit are both derived from an underlying /x/. Historically this variation comes from a reanalysis of derived forms. The MHG noun *vrumeceit* comprised the adjective *vrumec* plus the suffix -heit, which lost its initial h after the final c, [k], elsewhere it was retained, *vrumecheit*. The motivation for the formation was made clearer by the spelling, *Frömmekeit*, giving a full form of both suffixes. Since in some cases new adjectives like *frömm* were created by back formation, there arose a new suffix -igkeit, which in NHG is obligatory after -los and -haft, *Lieblosigkeit*, after -er, -el the suffix was reanalysed as -keit alone. Thus, in NHG, we have a unique morphophonemic alternation between [i] and [k]. Judging from Gottsched's list of derivations, the alternation had already been reached by his time.68

After medial MHG h was lost in pronunciation it was often still retained in spelling, and since its preceding vowel was always long it came to be used to signify vowel length, and thus h tended to be used where it was historically not justified, merely to indicate vowel length. This usage first appeared in CG where it increased in the first half of the sixteenth century. Fabian Frangk describes this usage: "Wenn das h bey odder nach einem stimmer gesetzt wird/ do es nicht scherpif und also seins ambsts müssig

68) Gottsched 212, Bitterkeit, Fröhlichkeit, Langsamkeit, Müßigkeit.
steht/ so erlengt und er höchst es den beygesazten stimmer/ als
ahm, nahm, vernehlich/ ihm/ ihn/ ihr/ vernehmen/ oheim, genommen,
uhm/ muhme". As a length sign h is first used before m, n and
r. However the use of h to show vowel length has not become
universal before NHG /l, m, n, r/, cf. malen, Namen, Mond, Moor.
The only example of the combination: long vowel plus h before
another consonant seems to be Fehde, but here the h is historically
justified, cf. MHG vēhēde. Where it is used finally: sah,
Stroh, Floh; there is always an inflected form with medial h,
sahen, Strohes, Flöhe.

Gottsched is against an overuse of h as a length sign and says:
"Man setze das h bey denen aber nicht, die solche nicht nothig
haben", but he recommends its use to distinguish homonyms, e.g.
malen : Mahlen, war : wahr. 70

5.5.5. The development of MHG /j/
In NHG the voiced palatal fricative /j/ occurs initially before
vowels where it is always spelt j : ja, Joch, jung. It only
appears medially between vowels in loan words from LG, Boie,
Koje. Generative descriptions of NHG assume that both NHG /v/
and /j/ are to be derived from underlying glides /w, j/ by a
Glide Spirantization Rule. 71 NHG initial /j/ has more friction
than the initial sound in English yes. 72 Even in NHG, /j/ had a

69) Müller 1882, 98.
70) Gottsched 90.
71) Vennemann 1968 b, 91f.; Wurzel 1970, 244-248.
72) Vičtor 1904, para. 80.
very limited distribution, but in some words in MHG /j/ occurred medially between vowels: wejen, wejen, drajen, bluejen, bruejen. These verbs occurred both with and without medial j. Sometimes the medial j was spelt g particularly in Alemannic before MHG /ei/, /i/. There were also graphemic alternations between g and j: jesen, infinitive, but miset, third person sing. present.73 This reflects the fact that in many dialects MHG /g/ had a fricative pronunciation. Parallel to the development of MHG /w/ and /v/ after /l/ and /r/, MHG /j/ and /g/ merged in /g/. However this development is not general and is only reflected in the two words Ferge, 'ferryman', and Scherge 'executioner'.74 The palatal fricative /j/ occurred after /r/ in other forms in MHG, nerjen, herjen, but it was removed by analogy. NHG nähren (ver) heeren. NHG jäh goes back to MHG gehe and shows the development of /g/ to /j/ initially.75 In ECG dialects hypercorrect forms with /g/ for /j/ are far more frequent since MHG /j/ and /g/ have merged there. These hypercorrect forms are even found in Upper Saxon documents in Early NHG, e.g. vergagen, NHG verjagen, der gunge, NHG der Junge.76 In those verbs with medial /j/ in MHG, which have lost it in NHG, the hiatus consonant

73) Paul/Moser/Schröbler 1969, para. 79.
75) Kluge/Mitzka 329.
76) V. Moser 1951, para. 132, 9, Anm. 2. Gotsched 68 rejects the Upper Saxon forms Jott, Jabe, jut for NHG Gott, Gabe, gut.
between the long vowel and the [e] is usually spelt h, drehen, blühen, brühen. In säen no h sign has been used. It seems that although these verbs have lost their MHG medial /j/, with the influx of loan words medial /j/ again occurs in NHG, e.g. Boje 'buoy', Koje 'bunk'.

NHG initial [je:] in je, jeder, jemand, jetzt goes back to the MHG diphthong /ie/, MHG ie, ieder, ieman, ietze. It is usually assumed that by a shift of stress from the first to the second component the first component has become a palatal semi-vowel or fricative i.e. MHG [ie] > NHG [je:]. As the signs ğ and ī were not used in their present way, i.e. ğ for the fricative and ī for the vowel, until the fifteenth century, the spelling gives us no clue as to when this change came about. Paul assumes that it began in North Germany and that form with initial [ǐe] existed in UG as late as the eighteenth century. This is not surprising since UG has retained the diphthongal pronunciation of MHG /ie, üe, ue/ until the present day (see 6.3.4.). The sequence /je/ existed in MHG jener, so the change of MHG initial [ie] to [je:] is an example of a shift with merger. The only exceptions to this change are NHG immer, and irgend, NHG iemer.

77) Boje, Kluge/Mitzka 89, was first recorded in 1575; Koje, Kluge/Mitzka 357, was already present in MHG. Forms like Kajüte, Pyjama, Major, where the ğ occurs after the chief stress, are not taken into account.


79) V. Moser 1929, para. 12.

80) Paul ibid.
iergen. But even in MHG these words had unstressed variants with short vowels instead of diphthongs. Probably the existence of /je/ in jener caused the other pronominal forms MHG ieder, ieman to change to /je:-/. That the presence of jener was crucial can be seen from Dutch, which had ghene in Middle Dutch for the demonstrative and where the modern Dutch forms ieder, iemand are pronounced [i:der], [i:mant]. Final [j] or [i] in Latin loan words has developed into a fricative. There are only a few examples of this: *Eppich* 'celery', Latin api(um), Kafig, late Latin cavi(a), Hennig 'red lead', Latin mini(um), and the place name NHG Venedig, Latin Veneti(a). The [i] came to stand in final position and palatal [ʧ] became pronounced after it, possibly first of all at the end of utterances. This was then later perceived as the same as NHG [ʧ] and written either ʤ or ch. Both spellings were possible after unstressed [i].

81) Paul/Moser/Schröbler 1969, paras. 10, Anm. 4 and 23, Anm. 4. The unstressed variant of MHG jetze, itzt was widely used in Early NHG but was not selected finally for standard, which has the stressed form NHG jetzt, Kluge/Mitzka 332.
82) Loey 1959, 147 and 149.
83) Paul ibid., para. 183, Wright 1907, para. 243.
5.6. THE NASALS

5.6.1. The development of MHG /mb/ to /m/, MHG /ng/ to /n/ and other assimilations

In NHG there are three nasal phonemes,\(^1\) bilabial /m/, alveolar /n/ and velar /ŋ/: schwimmen : sinnen : singen; schwamm : sann; sang. In MHG since the spelling mb, mp in final position occurs for NHG mm: MHG tump, tumber, NHG dumm, dummer, it can be assumed that in the cluster mb, [b] has undergone an assimilation to [ŋ], losing the oral stop. It can also be assumed that the spelling ng in MHG similarly represents a cluster [ŋɡ] and not simply the velar nasal [ŋ] as in NHG. Evidence for this comes from alternations in MHG like singen, past tense sanc (also the past tense sinken), and from the evidence of North German speech which still retains [ŋk] in final position.\(^2\)

The comparative evidence of English also suggests the interpretation of MHG ng as a cluster. Here [ŋ] alternates with [ŋɡ]: strong - stronger, and in morphologically isolated words [ŋɡ] occurs, finger, linger.

On the basis of this evidence it can be concluded that ng in MHG represents [ŋɡ]. This has been taken to mean that MHG only had two nasal phonemes, labial /m/ and alveolar /n/. In MHG [ŋ] is merely an allophone of /n/ before the velar stops, [ŋ] and /ŋ/ but in NHG it has become a phoneme and contrasts with /m/ and /n/:


\(^2\) Vûctor 1904, para. 118, Anm. 2.
The changes of [mb] to [m] and of [ŋg] to [ŋ] are phonetically both of the same type and involve an assimilation of the oral stop to the preceding nasal. NHG /mb/ and /ŋg/ were first assimilated to long nasals which were then shortened, as were all long consonants between NHG and MEG. Evidence that there was probably an intermediate stage with a long nasal comes from the fact that only short vowels occur before NHG /m/ and /ŋ/ which comes from MEG /mb/ and /ŋg/. In spelling NHG /m/ is spelt /mm/ and /ŋ/ is spelt /ng/. The results of the shortening, however, have had different results in the phonemic system of the language: the sound produced by the shortening of [mm] merged with the already existing /m/ phoneme, but the sound produced by the shortening of [ŋŋ] was a new phoneme /ŋ/ since it did not merge with any existing sound.

In standard NHG alternations like NHG singen : sanc do not exist, but they do exist in North German. This is used as evidence by generative grammarians that the elimination of the alternation /ŋ/ - /ŋk/ is due to rule reordering. In the history of German a rule of g-deletion is posited, which derives [dines] from underlying /dingə/ and a general final devoicing rule which derives North German [dink] from /ding/. If they are applied in the order: 1) final devoicing, 2) g-deletion, then taking /dingə/ and /ding/ as underlying forms, the North German forms [dine] and [dink] are produced. If, however, the order of application of

4) Schirmunski 1962, 392.
the rules is reversed: 1) \(g\)-deletion, 2) devoicing, the standard NHG forms are produced: \([\text{d}i\text{g}a], [\text{d}i\text{n}].\) The \(g\)-deletion rule applies both to underlying \(\text{d}inga/\) and \(\text{d}ing/\) and removes any \([g]\) upon which the final devoicing rule could act.\(^5\) Traditionally this change has been regarded as the levelling out of the medial forms with the velar nasal to the final forms with the velar nasal plus \([k].\)\(^6\) Generative phonologists are, in fact, revising many of their theories, and in particular they are making use of the concept of analogy in precisely those cases where traditional treatments also used it. Apart from North German, which has been already mentioned, NHG \(\text{hag}/\) has become \([\eta]\) even in words which are morphologically isolated like Finger. This has happened in all dialects and in fact, with slight differences, in all Germanic languages.\(^7\)

How old are these assimilations? There seems to be some evidence from the spelling \(n\) for \(\text{ng}\) in an eleventh century manuscript that it could have happened in Bavarian by that time: \(\text{gevanen},\) NHG \(\text{gevangen, sprinet},\) NHG \(\text{springt}.\)\(^8\) These are all examples of medial \(\text{ng,}\) but they remain isolated. In NHG there are examples of the merger of \(\text{mm}\) and \(\text{mb}\) in \(\text{mm,}\) and when new words were introduced into the language in the seventeenth century, e.g.

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5) Vennemann 1970, 79; Anttila 1972, 120.
6) Wright 1907, 128. For the full quotation see p. 30 of this present work.
7) Adamus 1965, 271-278.
8) Penzl 1968, 343.
Bombe 1616, they were accepted with the medial cluster mb.

Important evidence for the dating of the emergence of /ŋ/ is provided by Ickelsamer who states: "in den wortern Engel/angel, frank/ da hört man weder das n noch das g volkomlich/ sonder man hört auß jrer zusammen schmeltzung". This is generally taken to show that ng is pronounced [ŋ].

Although the clusters [ŋ̊] and [mb] were theoretically ousted out of the German language, they have been reintroduced through various means: names and loan words: Kongo, Ganges, Evangelium, Bombe, and by assimilation of [ŋ̊] to [m] before [b], MHG inböz, NHG Imbiß, which has often been facilitated by the syncope of medial e, which brought a nasal and a stop together, NHG aneböz, NHG Amboß. The medial cluster mb has apparently been unaffected by any assimilation, as is shown by the word Lampe which was borrowed into German in the ninth century. This cluster has been supplemented by loan words and dialect borrowings like Pumpe, Pumpe, and also by several words where an assimilation has taken place, MHG enbor, wintbrü, hindber, NHG empor, Wimper, Himbeere. In all these cases loss of morphological motivation in the compound form has enabled the pronunciation to be exactly

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9) Kluge/Mitzka 90. The word Plombe was borrowed in the eighteenth century, DE 517.

10) Müller 1882, 139, Penzl 1968b, 344.

11) Penzl 1968b, 344.

12) DT. Wb. 4, 1, 2064.

13) Kluge/Mitzka 420.
reflected in the spelling. The prefix in the verbs empfehlen, empfinden, empfangen was ent- in MHG, and the changes here are due to an assimilation of the alveolar cluster /t/ to the labial /v/ MHG ent-vangen, NHG emp-fangen. In these verbs the morphological motivation of the ent- prefix has been lost. Even historically they did not fit into the main groups of verbs with prefix ent-. In MHG this assimilation affected more verbs: empbrechen, emfarn, (enbrechen, entvarn). Schottel rejects these verbs with emp-, saying that there is no such prefix; instead he prescribes entvangen. Of these verbs Luther uses empfangen and never empfehlen, but always befehlen, and fühlen instead of empfinden, the latter form becoming widely used in the eighteenth century.

These changes are seen to be basically assimilation of an oral stop to a preceding nasal, and in many dialects of German the cluster nd or nt is assimilated in the same way to nn, cf. Luxemburgisch, kannen, fannen, (NHG Kinder, finden). This assimilation is not so widespread nor has it found its way into the standard, not even in isolated words. This may possibly be due to the fact that it was not so widespread as the other assimilations, and also because in many cases a morpheme boundary

16) Schottel 215.
17) empfangen, Dt. Wb. 3, 422; empfehlen, 3, 421; empfinden 3, 426.
18) Hitzka 1943, 122.
lay between the nasal and the following stop, i.e. in the past tense *rannte*. It is perhaps significant that the weak verbs, which in NHG have still retained a different vowel in their past tenses and past participle from the infinitive and present, are the very verbs which show the cluster stem final *n* + *te* in the past tense: *rennen*, *rannte*; *nennen*, *nannte*; *kennen*, *kannte*; *brennen*, *brannte*; *senden*, *sandte*; *wenden*, *wandte*. These last two verbs also have the past tense forms *sendete*, always used of radio transmissions, and *wendete*, which is always used when the verb is transitive, e.g. *Der Schneider hat den Rock gewendet*. Gottsched has already labelled these as exceptions. Perhaps the retention of the forms with *'Rückumlaut'*; i.e. with unmutated stem vowel in the past tense, is due to the fact that in some dialects and colloquial speech *nt* was assimilated even though there was a morpheme boundary intervening. These forms are a reaction to this assimilation. Another influencing factor

19) The modal verb *können*, past tense *konnte*, probably also fits in here. In NHG they had the past tense ending *-de*, *kunde*. The only sign that these verbs were susceptible to assimilation is found in the wrong use of *nd* for *nn* in a Bavarian text of the seventeenth century. For *können* the form *khinden* is used, and the past tense is *kindte* or *kindtte*, Piirainen 1968, 209.

20) Duden Grammatik 1966, 1130. There are exceptions where both forms are used: "Ersandte oder sendete einen Boten. Ein Bote wurde gesandt oder gesendet. Das Glück wandte oder wendete sich, hat sich gewandt oder gewendet".

21) Gottsched 347.
against the acceptance of this assimilation was the wish to keep -te as the weak verb past tense marker.

In many CG dialects the sequence nd or nt has become [ŋ] and this development is reflected in the word verschlingen 'to devour' which Luther uses in the form verschlinden. It has merged with schlingen 'to wind'. Schottel has both a form with nd and a form with ng.  

Another case of nasal assimilation concerns the nasal before f as in NHG fünf, Senf, Ankunft which, despite the prescription by Siebs that it should be pronounced as an alveolar nasal, [zenf], is assimilated to the following labio-dental fricative and pronounced labio-dental [mj]. This pronunciation must be quite old, as in OHG n before f is sometimes written m. This is a clear illustration of how the spelling can mask changes. It is simply a mechanical assimilation and has had no effect on the phonemic system as a whole. If n was originally alveolar then the development to [mj] is a phonetic change which has produced a new allophone of OHG /n/.

In many cases nasals in NHG seemed to occur before stops or fricatives of the same point of articulation but through the syncope of unstressed e, m came to occur before t: NHG Amt.

22) Schottel 1401.

23) Siebs 1958, 63; Duden Grammatik 1966, 59, brands it as Nicht-hochlautung; WDA, 66, says it is not to be allowed in Hochlautung.

kommt, Samt, and in Early NHG these words are sometimes spelt Ampt, kommt, Samt, but this spelling has not been accepted by the standard, although the pronunciation was prevalent in colloquial speech.²⁵ It is only in really careful speech that one can avoid producing a voiceless bilabial stop in the transition from a bilabial nasal to an alveolar stop. This is also a mechanical assimilation which is non-distinctive and need not be recorded in the spelling. This also happens after [ŋ], where the transitional sound is a [k], and for many speakers singt and sinkt are pronounced the same. This insertion of an epenthetic voiceless stop occurs only after a nasal which is followed by a t. It does not affect many words: Amt, Hemd, Imker,²⁶ fremd and the verb forms, komm t, singt, drangt. It happens only before t, thus links and rings are pronounced [liŋks], [riŋs]. The NHG cluster /nx/, [ŋŋ] as in Münch, has resulted from NHG /ŋx/ through the loss of unstressed [e], (see 5.5.1.).

²⁵) It is recorded sporadically in OHG and, according to Moser, 1951, para. 129, 7: "erfolgte seit dem 14 Jh. schriftsprachlich in ausgedehnten Maße und blieb weiterhin auch in den Drucken und Hss. des 16, u. 17. Jh. s - vor allem vor den Geräuschedenten (d, t, s) - ganz gewöhnlich, ja bildet in einem gewissen Umfang sogar die Regel während des frühneuhochdeutschen Zeitraums". See also 5.1.3. of this present work.

²⁶) Dt. Wb. 4, 2, 2065.
5.6.2. The change of NHG -em to -en and other minor changes

In word-final position unstressed NHG -em has become -en, except in grammatical categories, e.g. NHG besem, NHG Besen. This has affected the following NHG words: Boden, Busen, Faden, Schwaden. Dutch and English retain the final -m in these forms, e.g. NHG Busen, Dutch boezem, English bosom.

The only real exception to this is the word Atem which sometimes has the alternative form Odem. The reason why this word has not been affected may be that it is morphologically related to the verb atmen in NHG which retains the -m. The final -m in Atem did not change to -n, since its relationship with atmen would have been obscured. The other words appear to have no morphologically related verbs. This change appears sporadically in the UG and CG manuscripts of the twelfth century, and is a second cycle of the general change of unstressed final -m to -n, which started in the ninth century, tagun becoming tagun.

This change is a prime example of a sound change which is grammatically conditioned; it applies to all unstressed -em, providing they are not inflectional endings. This is true of the standard language but not of the spoken language. In Berlin in the eighteenth century the substitution of final -n for -m in the spoken medium is mentioned, and from the quotations,

27) Weinhold 1883, paras. 487 and 505.
29) Paul 1916, II, para. 239 interprets this slightly differently. He argues from fluctuating forms ending in -m and -n that this was a sporadic change which affected only a few forms. However the results of the change show that this change affected all the possible forms ending in -em, except Atem.
it seems to go back as far as 1538. Through this change a confusion between the dative and accusative forms of the articles and adjectives has resulted, which is reflected in the letters of the Prussian Electors: "einen abgesetzten Procurator gebe ich keine Pension" instead of einen ...

At one level of the language the change is very general, but since it became realized that the change led to a confusion between the accusative and the dative the educated classes strove, with success for the most part, to keep the distinction where it mattered in inflection: den:dem, einen:einem, guten:
guten. This morphological distinction has also been kept in the standard where the confusion of accusative and dative is regarded as uneducated. The DSA map (unser)em shows the ending -em chiefly in Pomerania, East Prussia and in Alemannic dialect, continuing up and covering West Moselle Franconian. Other areas, e.g. ECG, Bavarian, have -ern or -en. This lack of morphological distinction between dative and accusative endings is thus quite widespread.

MHG Turm is recorded in MG as turn, cf. Dutch toren, and the substitution of m for n remains unexplained. One suggestion, which seems rather improbable, is that it may be due to the analogy of the Latin accusative turrem.

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30) Lasch 1928, 269.
31) DSA map 40.
32) Dt. Wb. 11, 1, 466f.
In the NHG words *sonst*, *sintemal* and *nun*, an *n* has been inserted which was not present in NHG, *sus*, *sit deme male*, *nū*. In the case of *sonst* and *sintemal* no explanation has been offered but *nun* may possibly result from false analogy, an *n* may have been inserted between it and a following word beginning with a vowel, and by a wrong analysis *nū* was perceived as *nun*.\(^{33}\) NHG *nū* survives in, *inju* 'in a trice', and the exclamation *(na)nul*. This insertion is common in many UG dialects where *n* has been lost before consonants and has become mobile: *wo-n-er* 'when he', *wie-n-er* 'as he'.\(^{34}\) This is the same phenomenon as we have with intrusive *r* in English, the *idea-r-of* it. The acceptance of the form *sonst* is due to its use by Luther but its origin and that of the now archaic *sintemal* must remain unsolved as yet. These words reflect a change in the incidence of NHG *nu*.

\(^{33}\) Clark 1950, 56-59.

\(^{34}\) Keller 1961, 54.
5.7. THE LIQUIDS

5.7.1. The development of uvular [R]¹ in initial position

The description of the phonetic realizations of NHG /r/ is difficult, because there are so many different kinds of r-sounds, which vary in their articulation according to where they occur in a word. It is generally recognized that there are two types of r-sounds in NHG a dental-ør, Zungenspitzen-ør, and a uvular-ør, Zapfchen-ør.² Most speakers are unaware of which kind they use.³ The two types of r are usually considered to be trills, or rolled sounds⁴ except word finally. They are voiced, except in combination with voiceless consonants when they tend to be devoiced. Although Siebs says that the use of uvular [R] is widespread and that it has equal status with the dental [r], he goes on: "Doch ist die Zungenspitzenform des r vorzuziehen".⁵ For both types he prescribes a trill pronunciation. Most statements about /r/ are prescriptive and are not based on empirical data of how /r/ is actually pronounced by speakers. A recent study of the pronunciation of some newscasters and actors in East Germany has shown that of all the many variants of the /r/ phoneme the most widely used one is the

1) For typographic reasons [R] will be used for any uvular r, trill or fricative, when it is being opposed to a dental (a cover term for dental and alveolar) [r], trill or fricative. The symbol j will be written for the uvular fricative.

2) Paul 1916, II, para. 225; Vietor paras. 76, 92, 93.

3) Vietor ibid., para. 76, Anm. 2.


5) Siebs 1958, 61.
uvular fricative [b]. This is mostly used in prevocalic initial position, \textit{rot}. The newsreaders only used a uvular r, and in over 80\% of the words they pronounced they used the uvular fricative [b]. Among the actors only a very small proportion of the words they pronounced contained dental r allophones. They too used [b] overwhelmingly. Initially after obstruents, \textit{trinken}, \textit{Strecke}, the percentage of uvular fricatives, [b], was higher for both groups. The uvular fricative was also used in other positions, postvocally after short vowels, except in the unstressed prefixes \textit{er-}, \textit{ver-}, \textit{zer-}, e.g. in \textit{wird}, \textit{wirr}, \textit{Burg}. In this position the uvular fricative [b] is still the dominant realization of the /r/ phoneme but the percentage is not so high as in prevocalic position. Also finally after [a:] the uvular fricative [b] occurs, but the percentage is much lower, only 28.4\% of the words spoken by the newsreaders had uvular [b] and only 30.7\% of the words spoken by the actors had uvular [b]; in over 50\% of the words the /r/ was elided and the [a:] had become overlong. (For the vocalization of /r/ see 5.7.2.) In this section we are only concerned with the occurrence of uvular [R] in initial prevocalic position.

It is generally assumed that of the two /r/ sounds in NHG the dental [r] and the uvular [R] the dental [r] is the older.

6) Ulbrich 1972, 68f.
7) Ulbrich ibid., 88f.
8) Ulbrich ibid., 91f.
9) Ulbrich ibid., 123f.
Ickelsamer describes it as "ain hundts buchstab/ wann er zornig die zene blickt und nerret/, so die zung kraus zittert", which clearly points to a dental articulation. In other Germanic languages, such as English, Swedish, Norwegian and Icelandic, r is still dental, either a trill or a flap. Although it seems clear that the dental [r] is the older, it is not clear when the uvular [R] arose in the Germanic languages and why it did so. It has been argued that even in some dialects of OHG there was a uvular [R], since r seems to form a natural class together with h and w in preventing umlaut, and also in forming the environment which monophthongizes Germanic ai. However this may only be because OHG r was velarized and not necessarily a uvular [R].

Spelling gives us no clue since r has been used from OHG to the present day. More compelling evidence has been adduced that at least in some parts of Germany in late NHG and early NHG a uvular [R] was in use, if only to a limited extent. If this is so, and the evidence for it seems strong, then it may not be a borrowing from French, as many scholars thought, but an autonomous development in Germany. However, this will not explain everything. It seems reasonable to suppose that uvular [R] could have arisen in parts of Germany as an autonomous development. In the north of England there is a small area in Northumberland and Durham which also has a uvular [R] and no-one

10) Müller 1882, 128.
13) Trautmann 1880, 204-222, 376-378.
would say that that was a borrowing from French. Indeed it, too, is quite old.\textsuperscript{14} Uvular [R] is also universal in Danish dialects and the standard language and even in the dialects of Skåne in Sweden,\textsuperscript{15} and this too can hardly be a French borrowing. There is thus sufficient evidence to say that an autonomous development of uvular [R] in Germany is plausible, but it does not account for its wide-spread use today. There seems, as yet, no accurate study on the distribution of uvular and dental /r/ in German dialects, which hinders us from seeking an answer as yet from dialect geography.\textsuperscript{16} The dental [r] has always been regarded as the prestige pronunciation, which for a long time was modelled on the stage usage, and only recently has the standard taken steps to allow the use of the uvular [R] to enjoy equal status with the dental [r], although the two types have been used equally much for a long time.\textsuperscript{17} The autonomous development of uvular [R] was probably supported by the use of a similar sound by the aristocracy in the eighteenth century, when in most parts of Germany there was, to a certain extent, a diglossic situation.\textsuperscript{18}

\textsuperscript{14} Kolb 1966, Maps 366, 367. This uvular pronunciation of $\mathbf{r}$ was noticed as early as the eighteenth century, Wakelin 1972, 42.

\textsuperscript{15} Bergman 1947, 83f.

\textsuperscript{16} On the dental [r] and uvular [R] in German, Paul, 1916, II, para. 225, maintains: "Die erstere herrscht im Gouden, die letztere im Norden". But LG dialects also have a dental [r], Keller 1961, 314, 365.

\textsuperscript{17} Siebs 19th ed. 1969, 85f.

\textsuperscript{18} For the term 'diglossia', see Ferguson 1959. In this case any diglossia was limited to a certain social class and was temporary.
the high-level language being French, which was spoken and written by the aristocracy, and the low level language being German in its various regional forms. The situation has been well described by Herder: "Wenn sich nun, wie offenbar ist, durch diese törichte Gallicomanie in Deutschland seit einem Jahrhunderte her ganze Stände und Volksklassen von einander getrennt haben, mit wem man Deutsch sprach, der war Domestique, (nur mit denen von gleichem Stande sprach man französisch, und forderte von ihnen diesen Jargon als ein Zeichen des Eintritts in die Gessellschaft von guter Erziehung, als ein Standes-, Ranges- und Ehrenzeichen,) zur Dienerschaft sprach man wie zu Knechten und MäGen sprechen muß, ein Knecht- und MäGdendeutsch, weil man ein edleres, ein besseres Deutsch nicht verstand und über sie in dieser Denkart dachte". Herder stands at the end of this period of diglossia, and it is probably due to him and the other men of letters in the eighteenth century that German became a national language, instead of an inferior low-level language. These men were themselves not aristocrats, although they lived at court and were in some cases great friends of the nobility. German, as a standard written language, owes much to its use as a literary language both in novels and in poems and in spoken form on the stage. Since the aristocracy, who probably introduced the uvular [R] with any frequency into Germany, were not concerned with the care of the German language, it is not surprising that the uvular [R] was not imitated by

19) Herder 18, 161.
many speakers. Only as time has gone by has the uvular pronunciation advanced from being a socio-linguistic marker of a social class who did not care about German, and possibly also of a certain region, and has become free to be imitated without impunity by all and sundry. If the aristocracy had been held in esteem, it might have become the prestige pronunciation. The occurrence of uvular [R] is due to two things, to autonomous development in certain parts of Germany, and to its introduction by one social class from French. Ulbrich regards the fricative [?] as being the main allophone of NHG /r/, but he does admit that the friction may be strong or weak. In fact initial /r/ may well be a frictionless continuant, certainly in colloquial speech. The International Phonetic Alphabet has no separate symbols for a uvular frictionless continuant, and a uvular fricative. They are both symbolized [?]. In NHG both the fricative and the frictionless continuant exist as variants of the uvular [R]. While the change from dental to uvular has no obvious phonetic motivation, the change from a trill to a fricative or frictionless continuant is due to ease

20) Ulbrich 1972, 50.

21) A diacritic has been suggested, e.g. [?] would be the symbol for the uvular frictionless continuant, and [?] for the uvular fricative. They are both voiced. This diacritic has not been officially accepted by the International Phonetic Association, Abercrombie 1967, 126.
of articulation. Similarly there seem no structural reasons for a shift from dental to uvular. No phonemic change has resulted; it is a change in the distinctive features of the /r/ phoneme. One possible reason that could be advanced is that the development of dental [r] to uvular [R] is to provide a voiced partner for NHG /x/. This seems unlikely, since, according to one suggestion, [x] is moving towards [ɣ] to provide a voiceless partner for /ʃ/. Before voiceless consonants NHG /r/ and /x/ are merged by some speakers, but this is not allowed in the standard. The development of a uvular [R], whether a trill, fricative or frictionless continuant is something which has an extra-linguistic source. It seems to have arisen in some areas of Germany autonomously and has been spread through the adoption of the French r by the aristocracy. It has been spread within Germany from cities and towns.

5.7.2. The vocalization of postvocalic NHG /r/

The other important development of NHG /r/ is in postvocalic position before consonants, or in word-final position, where it has become vocalized. This change is again due to ease of articulation. The friction used becomes less and less until it is non-existent, and the sound becomes a vowel. The age of this vocalization cannot be ascertained, as the spelling has not

22) Lüdtke 1959, see 5.5.1.
23) Ulbrich 1972, 92; Siebs 1958, 61.
24) Martin 1959, 47.
changed and there are no grammarian's comments on it. It is, however, probably of recent origin, since it is even not recognized fully by the standard language. The latest Siebs finally acknowledges its existence, but only in the style dubbed "gemäßigte Hochlautung" and transcribes only a few words with a final vowel instead of /r/. It seems best to treat this phenomenon in two parts, according to the position of /r/. Post-vocally after long vowels, except [a:], NHG /r/ is almost exclusively realized as an unstressed short central vowel [e], which can vary in quality according to the vowel it follows. This also happens after short vowels and [a:], but to a much lesser degree. However in colloquial speech NHG /r/ is almost certainly vocalized to the same extent after all vowels. The vocalization of /r/ can either produce a diphthong: [he:ts] Herz, or a long vowel [he:ts]. The only case where there is always a long vowel in all styles of German with vocalization is in the case of the sequence /ar/: for many speakers this produces a merger of Karte and Kate in [ka:ts]. It is reported that this merger of short vowel plus /r/ with the corresponding long vowel takes place in North West Germany, but it is not clear how far this extends. At present this vocalization is not considered.

26) Siebs 19th. ed. 1969, 86. The vocalization of -r is only allowed "bei den Einsilbern in pro- und enklitischer Stellung (der, mir, für, vor) ... gestattet ist".

27) Ulbrich ibid., 113ff. and 91ff.

part of the standard language. The change has, of course, taken place in English and the East Coast dialects of the United States. The resultant sounds have been long vowels, among which the long central vowel [3:] is a new phoneme.29 No structural pressure seems to exist in German why this change should or should not have taken place. In English this change produced two new phonemes /a:/ and /3:/ . The spelling conventions and the threat of a large number of homonyms are probably the two factors which stand in the way of this being fully implemented and accepted by the standard in NHG.

In final position after schwa the vocalization of /r/ has resulted in the sequence /er/ being represented by the one central vowel [e], which is lower than [e] and contrasts with it: [bite] bitter : [bitː] bitte, so no morphemic mergers between the inflectional endings -er and -e have resulted.30 From the evidence of some dialects, where there is a similar vocalization of -er, it seems that schwa is often dropped and -er eventually becomes schwa. According to the DSA this happens in large stretches of Low German and Bavarian, but it is not universal.31


30) Ulbrich 1972, 105ff. In Rhine Hessian, where vocalization of final -r has taken place, NHG -e and -er are still kept apart by the opposition [e]:[t], Keller 1961, 170.

31) DSA map 13, -er Endung. This map is difficult to interpret for it is not easy to determine the exact areas where -er is vocalized: "... scharfe Linien sind nirgends möglich, denn -er wird massenhaft nach der Schriftgewohnheit geschrieben", Introduction to DSA, 6. For vocalization of /r/ in general see DSA maps: 47 Dorf, 57 vier, 112-115 Wort.
This is what has presumably happened in English, where we have [beik] bake and [beike] baker, which were probably at one time [beike] and [beiker].

This whole section on the vocalisation of /r/ must be regarded as rather tentative, simply sketching out possible developments, since this change, which although widespread, is still regarded as belonging to colloquial speech. The retention of the spelling with r hinders its recognition. The vocalization of -er to [e] has resulted in a morphophonemic variation of [e] with [e]32:

[maue] Mauer, [mauer] Maurer, [oiB] euer, [oiRe] eure. The vocalization is still, to a large extent, predictable in its occurrence and, as such, causes no threat to any part of the phonological or grammatical system. There is no intrusive linking r, which is used by some speakers of English: a propaganda -r-exercise.

The vocalization of the morpheme -er to [e] has perhaps been one of the causes of the spread of the suffix -ler in NHG which is chiefly used to form denominal nouns, Zeltler, Dörfler, Wissenschaftler, which would be acoustically clearer than simply -er, as well as being semantically clearer than the polysemantic suffix -er. The function of -er has also been taken over, but to a lesser extent, by the suffix -ner, Pfortner, Redner.33 There is apparently no sign of confusion between the inflectional endings -e and -er, but these are conditioned by the presence

or absence of certain determiners, e.g. *der gute Wein, but
*ein guter Wein.

5.7.3. The loss of /r/
In MHG there was a distinction between dā 'there' (rest) and
dar 'thither', but in NHG this distinction is carried by the
particle hin; da : dahn. NHG dā, when forming a compound
particle, added an -r when the particle began with a vowel:
dārane, dārufe, as against dābi. The adverb dar also elided
the final vowel when it formed compounds, darane, and in the
course of time the compounds with dar were taken as belonging to
dā and not dar, which eventually went out of use.34 The morpho-
phonemic alternation between dā and dar in MHG increased in NHG
by absorbing the forms with dar plus prepositions beginning
with a vowel.

This meant that MHG dar eventually lost its separate morphemic
status and meaning and became merely a variant, an allomorph, of
the NHG reflex of MHG dā. There are, however, still the compet-
ing spellings darneben, darnach. Exactly the same thing happened
with MHG wā with its allomorph wār, and MHG war 'whither', which
was replaced by wohin, and in so doing lost its independent
meaning and became an allomorph. In the case of NHG hier, this
too originally had two forms hie and hier which were in complement-
ary distribution. In NHG the form hier, which originally only
occurred before vowels, has been generalized: hierin, hiervon.

34) Paul II, para. 228.
hierfür. Hie, which in the sixteenth century existed as a competing form, only exists now in the formula hie und da and the derived adjective hiesi. These changes are peripheral changes which show the generalization of an allomorph with r in the case of hier, and the retention of an allomorphic variation da - dar, which has led to the loss of dar 'thither', and of wär - war, which has lead to the loss of war 'whither'.

The words Polier, Körder 'bait', are always cited as originally having an r before the consonant, NHG körder, Luther körder, NHG parlier, NHG fördern had the opposite, a form without r, födern, well into the eighteenth century. These cases are often regarded as loss due to dissimilation of a final r. This may be the cause of the loss of r, but does not explain their selection by the standard language, for there are other forms where no dissimilation has taken place, e.g. Marter, Warter. The form with r in fördern is due to Adelung, whereas Gottsched only has the form födern, as has Luther. The word itself was originally only a legal term and the form födern spread from ECG in the fourteenth century. The form Körder need not be due to dissimilation, but to a popular etymological remoulding with reference to Kot. Hunters could easily refer to their bait jokingly as Kot. The form Körder itself first appears in the seventeenth century.

35) Paul ibid.
36) Paul ibid., para. 229.
37) Dt. Wb. 3, 1890.
38) Dt. Wb. 5, 1571.
The NHG word Polier, MHG polier, is a reformation by analogy with the etymologically unrelated verb polieren with no r before the l, and can be satisfactorily explained in this way. The most difficult case is fordern, but it would seem that there were competing forms fòderen, fordern, the latter being finally selected for the standard. Another possible reason for the loss of r might be vocalization, but there is no real evidence to prove early vocalization. For English it has been assumed that r was lost early, before dentals. Since in these words r appears before dentals, they could be a very early example of vocalization of r. All three words have r etymologically.

In MHG some strong verbs had an alternation between /s/ and /ʃ/: friessen, gefroren, verliesen, verlurn, but this has been levelled out in NHG, frieren, gefroren, verlieren, verloren. The verbs concerned are not numerous, and the s - r alternation was removed in several ways: it was levelled out in favour of /ʃ/ e.g. verlieren, verloren, the verb became weak but retained the s[z] of the infinitive, e.g. niesen, the verb was replaced by another one, kiesen was replaced by wählen (only erkoren the past participle remains). The alternation remains, however, in word-formation frieren, Frost. The verb 'to be' in MHG had the past tense sing. was, pl. waren, and past participle gewessen. Only in the past tense is the alternation /s/-/ʃ/ levelled out, war.

39) DE 519.
40) Hill 1944.
waren, the past participle gewesen remains. This is due to the fact that the form gewesen appeared after the $\text{[s]}-\text{[z]}$ alternation had been levelled out. The replacement of was by war does not represent a levelling of the $\text{[s]}-\text{[z]}$ alternation but an ad hoc reaction to the homonymic clash, which would have resulted from the merger of MHG /$\text{s}$/ and /$\text{z}$/ in final position (see 5.4.1.).

5.7.4. The development of MHG /$\text{l}$/

Unlike English /$\text{l}$/ with its two main allophones, dark or velarized [$\text{\#}$] finally, e.g. feel, and light or palatal [l] initially and before front vowels, e.g. leap, feeling, German has no such variation. NHG /$\text{l}$/ is a voiced alveolar lateral with the back of the tongue slightly lowered. There seems to have been no obvious change in its articulation in the history of German. Ickelsamer describes its articulation in the following terms: "Das I ist ain zungen buchstab so sich der mund gleich zum lachen und fröligkeit schickt". In HHG there was a contrast between short and long /$\text{l}$/, stelle : stelle, but this distinction has been replaced by one of vowel length, stele : stelle. Is there any evidence in MHG or OHG for any other pronunciation of $\text{l}$? The answer appears to be negative. In OHG, $\text{l}$ is sporadically replaced by $\text{r}$, kirihha, kilihha, in Alemannic but this is usually interpreted as evidence for a dental

41) Dt. Wb. 4, 1, 3, 568?; eine neuschöpfung der mhd. zeit und dort nur sporlich belegt.
42) Siebs 1958, 62; WDA 48; Vietor 1904, para. 97.
43) Müller 1882, 128. This is taken by Vietor ibid., Anm. 3 to imply no change in articulation.
pronunciation of OHG r. The Italian word \textit{viola} is to be compared with MHG \textit{videl} but the former is not a borrowing from German but both are rather borrowings from Provengal in the shape of Middle Latin \textit{vidula}.\footnote{Kranzmayer 1956, map 7.} It does not seem possible to interpret Italian \textit{viola} as showing that there may have been a velarized [?] in MHG.

In German dialects, however, MHG /l/ has undergone changes. In Westphalia it is pronounced as "a middle-tongue lateral,"\footnote{Kranzmayer ibid., para. 49.} as is evidenced from the spelling \textit{soult} by the lay informants for the DSA map \textit{Salz}.\footnote{DSA maps 83-86.} One characteristic of the Middle Bavarian dialect area is that /l/ has become vocalized.\footnote{Kranzmayer 1956, map 7.} This is shown on the DSA by the spelling \textit{saz}, Kranzmayer would like to assume that this back articulation, which he finds in Bavarian, is true of the whole of German in the Middle Ages and he cites as evidence that /l/ vocalization appears in other Germanic languages, in Dutch, and, although he omits it, in English and Scots. A second reason he advances is that a velar [?] would hinder the effect of i-mutation.\footnote{This velar articulation of /l/ became fixed in the fourteenth century, hence the vocalization of /l/ as [?] and not [l].} These reasons are certainly not strong enough proof that velar [?] was quite widespread in earlier times. The evidence from the dialects points only to Middle Bavarian and Westphalian as strongholds of dark /l/ or vocalized /l/.

\footnotesize

\begin{itemize}
  \item 44) Penzl 1971, 102.
  \item 45) Kluge/Mitzka 197.
  \item 46) Keller 1961, 314.
  \item 47) DSA maps 83-86.
  \item 48) Kranzmayer 1956, map 7.
  \item 49) Kranzmayer ibid., para. 49.
\end{itemize}
The majority of scholars certainly do not assume that, although it cannot be disproved, since no change in spelling has occurred. A more plausible description is that velar [ŋ] may have been more widespread earlier but that it never achieved the status of offering a prestige pronunciation. It presumably arose mechanically by assimilation after back vowels, but never became widely used, whereas in English, on the other hand, it has become a prestige pronunciation and accepted by the standard.

If no major change seems to be involved with /l/, it has been subject to a number of minor dissimilations with both /n/ and /r/ for which reasons are hard to find. At one time all these consonants shared the same point of articulation, only /l/ has since become uvular and changed its point of articulation. In the words Knoblauch 'garlic' and Knäuel 'ball (of wool)' the n in the initial cluster is an l in OE. MHG sammeln goes back to MHG samenen. The word Tölpel goes back to MHG dorper and here both the /p/ and /e/ have been dissimilated to /l/ 50 In German dialects there is no trace of a wholesale confusion of either /l/ and /r/ or /l/ and /n/. The development of sammeln with early dissimilation of /l/ is paralleled in Dutch, where samelen goes back to Middle Dutch samenen 51, and here the easing of the pronunciation is probably the reason for the change. In Knäuel and Knoblauch the loss of the morphological motivation of the first part, connected

50) Knoblauch Kluge/Mitzka 582; Knäuel Kluge/Mitzka 623; Tölpel Kluge/Mitzka 782.

with *Klaue* and *klieben* respectively, may have led to a substitution of */n/* for */l/*.

The form *klobelauch* is still found at the beginning of the eighteenth century, whereas *Knäuel* seems to be the main form from the fifteenth century onwards. Schottel uses both *knäuel* and *kleuel*. *Tölpel* may be the result of the confusion with *Tölpel* 'a piece of wood', in the expression "über den Töpel werfen", particularly since the form is exactly the same. The form with */l/* has been almost exclusively used since the sixteenth century, but Schottel has four variant forms: *tölp*, *tölpel*, *tölpel*, and *dölpel*. Two other words should be mentioned here, *Elend* and *Forelle*. MHG *Elend* goes back to MHG *ellenti*, and the spelling with */l/* is retained sporadically till the early nineteenth century. Luther always has the form *Elend*. *Forelle* was *forhene* in MHG, and the former variant is recorded in the late sixteenth century.

It is a well known phenomenon that these sounds have the tendency to undergo dissimilation, and the wonder is that there are so few examples in the history of German. In all these cases several forms produced by dissimilation were in competition and only one has finally been selected to the standard.

52) Kluge/Mitzka *ibid.*
53) Dt. Wb. 1449, 5, 1362.
54) Schottel 1346.
55) Paul Dt. Wb. 619.
56) Schottel 1432; Dt. Wb., 11, 1, 1, 693.
57) Dt. Wb. 3, 406f.
6.0. THE DEVELOPMENT FROM MIDDLE HIGH GERMAN TO NEW HIGH GERMAN: THE VOWELS

6.1. VOWEL LENGTHENING AND SHORTENING

6.1.1. Vowel and consonant length in Middle High German

In MHG, short and long vowels were in contrast in stressed syllables. Of the three parts of the syllable, we are concerned only with the syllabic element, i.e. the long or short vowel, and the arresting consonant. The releasing consonant or consonants are not our concern here and will be omitted. According to whether the arresting consonant is followed by a pause, or unstressed [e] followed by /l, r, n/, we will distinguish between monosyllabic words, e.g. of the structure VC, hof, or VVC, ru, and disyllabic words which had the structures VCe, rede, VVe, raten and VCCe schaffen.

Another type of disyllabic structure existed in OHG, VVe, e.g. lütten, but in MHG the long consonant has been simplified to t, lüten. Long and short vowels contrasted only before single

1) For this concept of the syllable see Abercrombie 1967, 73f.
2) V = any short vowel, VV = any long vowel or diphthong, C = a single consonant, CC = any long or geminate consonant.
3) Braune/Mitzka 1961, para. 96, Anm.1.
consonants in MHG, whereas before long consonants only short vowels occurred. The only exception to this is MHG *rûpe*, NHG *Raupe*, which also had the variant *ruppe*.\(^4\) Vowels are not only always short before long consonants in MHG but also before the affricates /pf/ and /ts/, *apfel, sitzen*. Before /ts/, however, there are some apparent exceptions: *sprüzen* occurred with an affricate but it also had a variant with a fricative, *sprügen*.\(^5\)

The words *düzen* and *brözel* occurred with long vowels in MHG, (see 5.1.2.) but a long vowel before MHG /ts/ was infrequent. Diphthongs also occurred before MHG /ts/, unlike MHG /pf/, *reizen, heizen*. In the word *tiutsche* a long vowel occurred before the affricate [tʃ], which is sometimes simplified to [ʃ] *tiusche*. In the disyllabic words long obstruents which occurred were always fortis or voiceless: *knappe, bette, brücke, hazzen, messen, schaffen, machen*.\(^6\) Long nasals and liquids also occurred in this structure: *swimmen, manne, dürre, stelle*. In the syllabic type VCa, the obstruents were always voiced, with the exception

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\(^4\) Kluge/Hitzka 587.

\(^5\) In the normalized spelling of MHG the affricate /ts/ is written ß or ts and the fricative /z/ is written ß. In this present work ß is always used after long vowels and diphthongs, except when it is absolutely necessary to show the difference between the affricate and the fricative.

\(^6\) Foreign loan words such as *abbot, rubbin* are disregarded. In UG the reflex of West Germanic *gg* is written *gg*, *muggе, bruggе*. This is assumed to be a long fortis velar stop, possibly unaspirated. In Alemannic sometimes a distinction is made between *gg*, representing W Germanic *gg* and *kk*(or *cch*) representing West Germanic *kk*. In standard MHG there is no such distinction, *hücke, Brücke, wecken*, the latter representing W Germanic *kk*.   

of MHG \(/t\): haben, reden, legen, beten, hove, lesen, sehen.\(^7\)

Nasals and liquids occurred in this structure as well: nemen, manec, türe, stele. In the syllable type VVOe the stops were voiced or lenis with the exception of \(/t\): ābent, snāden, frāgen, bāten, but both fortis and lenis fricatives occurred: zwīvel, grīfen, lāsen, sāzen, sāhen, sprāchen. Nasals and liquids also occurred after long vowels as well: nāmen, māne, stālen, bāren.

Vowel length was thus free,\(^8\) i.e. short and long vowels contrasted phonemically, before the stop \(/t\), all the fricatives and the liquids and nasals. Length was predictable, on the other hand, before the stops, apart from \(/t\): a long vowel occurred before a short lenis stop and a short vowel occurred before a long fortis stop. MHG medial \(/ʃ\) is also an exception to these rules. It is assumed to be fortis and long, since in MHG only short vowels occur before it (apart from the past tense form wusch) and the loan words Nische, Busche which have variants with both a short and a long vowel. In NHG short and long vowels contrast before it: e.g. busche : fūschen, busche : kiwschen, wuschen : lōschen.

However the contrast of vowel length only applies to these two vowels.

Consonant length was also phonemically relevant in some cases

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\(^7\) The only exceptions are provided by foreign loans, e.g. apostel, kapel, pappele, papier, sōbel, topeln.

\(^8\) For this use of 'free', see Lass 1974, 19ff.
in NHG. The stop /t/ contrasted with /tt/ after short vowels: bete 'request': bette 'bed'. Furthermore the liquids and nasals had contrasting long and short phonemes after short vowels: /m/: /mm/, nemen : swimmen; /n/ manec : manne; /l/ : /ll/, stelle 'I steal': stelle 'I place'; /r/ : /rr/, ture : dürre. The phonetic interpretation of NHG /rr/ is not clear. It is usually assumed that NHG /r/ was a dental trill or vibrant but there does not seem to be any language in the world where there is phonemic contrast between a long and short trill. If there is such a phonemic distinction, e.g. in Spanish para 'for': parra 'vine', the opposition /r/ : /rr/ is realized by /r/ as a flap and /rr/ is rolled. Possibly this was the realization of the NHG opposition /r/ : /rr/. Whatever its phonetic realization, it was an opposition of extremely low functional yield in NHG. There is also an orthographic opposition between s and ss: e.g. miseluht 'leprosy': missewende. This is the only contrast between what were probably a short and a long consonant among the fricatives. The phonetic nature of this opposition /s/ : /ss/ is uncertain. Probably /s/ was not only a short fricative but was also lenis (see 5.4.1.), whereas /ss/ was long and fortis. This is not an opposition which is realized solely as a difference of consonant length. In the case of NHG /p, k, f, z/ consonant length was allophonic. NHG /p, k, f, z/ all had long consonant allophones medially after short vowels.

9) Long consonants, which are phonemically distinct from short ones, are written phonemically by doubling the sign for the single consonant, e.g. /tt/, Jones, 1962, 119.


11) Stirling 1935, 41f.
and short allophones elsewhere. This can be seen from alternations in spelling such as knap, gen. knappe, smack, gen. smackes. This is probably the case with MHG /x/, e.g. such alternations as sprach, sprächen. This alternation in spelling has usually been levelled out in favour of ch, sprach, sprächen, but probably here, as well, a final short consonant allophone alternated with a medial long allophone. In normalized MHG, /f/ and /z/ are written f, z medially after long vowels and diphthongs, schlafen, gröse, and ff after short vowels, schaffen, bizzen. They are also involved in such alternations as biz, gen. bizzen, grif, gen. griffes.

In monosyllabic words there were phonemic contrasts of vowel length before all possible word-final consonants. Before some consonants, however, these oppositions had a low functional yield, e.g. tacvwac. The word wac would seem to be only case where a long vowel occurs before final /k/, c.

Length in monosyllabic words was completely free in MHG, but in disyllabic words there were more restrictions on the occurrence of length: before long fortis consonants, except /t/, only short vowels occurred. Long and short vowels contrasted chiefly before /t/ and short voiced consonants.

It is assumed that the changes from MHG to NHG came about in two stages: firstly by the lengthening of short vowels before a single voiced consonant (in open syllables), and secondly by the elimination of consonant length both phonemically and phonetically.
6.1.2. The lengthening of short vowels in open syllables

MHG short vowels in open syllables, i.e. before single consonants followed by [a], were lengthened and merged with already existing long vowels: MHG haben : Abent, NHG [ha:ben], [aibent], MHG lesen : leren, NHG [le:zen], [le:ren], MHG erzeln : mere, NHG [ertzeln], [me:re], MHG loben : tören, NHG [lo:ben], [to:ren], MHG höve : horen, NHG [hno:e], [hören]. MHG short /i, u, u/ did not merge with MHG long /I, iu, U/, since these were diphthongized,(see 6.3.3.), but with the reflexes of the diphthongs /ie, ue, uo/ : MHG lieben : siben, NHG [li:ben], [zi:ben], MHG trübe : über, NHG [try:be], [y:ber], MHG buobe : stube, NHG [bu:be], [stu:be].

Phonemically this is an example of a conditioned merger, or shift with merger. MHG short vowels developed long allophones in open syllables and eventually these merged with the corresponding long vowels. Probably the heavy stress on the root syllable was the main factor which caused this lengthening. Although this change is usually simply known as the lengthening of short vowels in open syllables, it should more accurately be called the lengthening of short vowels before single voiced consonants. 12

The lengthening of MHG short vowels before /t/ and the resonants /l, r, m, n/ is due to secondary causes such as analogy or spelling pronunciation (see 6.1.3.). This change started in the North West of Germany at the beginning of the thirteenth century.

12) Wright 1907, para. 105; Paul 1916, II, para. 35.
and spread towards the south and east. The southern most
Alemannic dialects still retain short vowels before voiced conson-
ants and have not undergone this lengthening in open syllables.
All the other dialects, as well as the other Germanic languages,
have undergone this short vowel lengthening. The West CG dialects
show some difference from the standard. In these dialects, as in
English, Dutch and the LG dialects, the short high vowels, MHG
/i, u, u/ have merged with the long mid-vowels [e:], [œ:] later
unrounded to [e:], (see 6.4.) and [o:] respectively. Some words
reflecting this development have been accepted by the standard, NHG
König, Sohn, MHG kunec, sune. There are no examples in the standard
of MHG /i/ being lowered and lengthened to [e:], but these did occur
in ECG sources and elsewhere, mede, getreben. NHG mite, getriiben.
In most dialects the short vowels in open syllables which were
lengthened merged with already existing long vowels, although with
different results from NHG, or in some cases diphthongs.
In NHG the merger of all the MHG short vowels with their correspond-
ing long vowels is due, in large measure, to the fact that we are
dealing with a written standard.

13) Paul/Moser/Schröler 1969, para. 23. For a recent treatment of
lengthening, see Reis 1974.
14) Jutz 1931, para. 31, SDS II maps 1-44 show a great variety in the
extent of lengthening, varying from word to word.
15) For English, see Wright 1924, para. 72f. For Dutch, see Loey
1959, para. 32. For Swedish, see Wessén 1965, I, para. 78f.
16) DEA map 41 Wies(e) shows the lowering of MHG /i/ in parts of
WCG and LG.
During late MHG and Early NHG orthographic signs to show vowel length were only in sporadic use. However there were three main ways of showing that vowels were long in Early NHG, which are still used in NHG. These methods were:

1. The doubling of the vowel sign, e.g. Early NHG seer, weeg, waer, voor. This does not happen in the case of ü and i.  

2. The addition of i or e. This happened chiefly to i, which added e, friede, mier. The sign i was added to a, o, u, e.g. jair, groiss, huis. The sign e was also used after a and o, e.g. jaer, broeder.  

3. The use of the sign h. This was chiefly used after o, but also after a, e.g. ehre, nahme. In the seventeenth century it was also used after o and u: hoch, krub, but this usage is exceptional.  

The doubling of vowel signs was used sporadically in OHG, but not in MHG. In Early NHG it came to be used again in the fourteenth century and its use reached a peak in the first half of the sixteenth century. It was mostly used in UG but in the seventeenth century the use of double vowel signs to show long vowels spread to CG. The most frequent vowel to be doubled was e, NHG See, leer, Heer, Heer. Long [a:] was also written not so frequently, baach, haar, staat. Long [o:] was written more frequently in Early NHG froo, blooß, hooch. The use of the sign ie for [i:] was  

18) Moser 1929, para. 7.  
19) V. Moser 1919, paras. 8 and 9.  
20) V. Moser 1929, para. 10.
originally Middle Franconian. UG sources did not use it until the late sixteenth century. In the first half of the seventeenth century it spread rapidly throughout CG. The use of e or i after a vowel, to show that it was long, was also a CG characteristic. ECG, however, did not show this method of signifying that a vowel was long, and only the di- graph us, for MHG /uo/, and us, for MHG /uo/, were used to any great extent in that area. These signs may in some cases, particularly in UG, have designated diphthongs and this was the probable reason why they were not selected by the standard. The use of h as a length sign only came into being after it had been lost medially between vowels in pronunciation (see 5.5.4.). It became widespread in CG in the first half of the sixteenth century. It is chiefly used after e and in pronominal forms such as ihm, ihn, ihr. It only came to be used after a and o in the first half of the seventeenth century, when it was also widely used in UG. Now in NHG the long vowel phonemes are written in the following way: NHG /i:/ is written i, mir, Biber, ie, lieben, Tier and ieh, but only in such words as Ich und Wir. / verb forms, ziehen, ziehst where the stem of the verb ends in The sequence th for /t/ appears in the pronouns ihn, ihn, ihr, writing with h. NHG /y:/ is written u, über, gute, and uh, Bühne, fühlen. NHG /u:/ is written u, Stube, gut, and uh, fuhr, Ruhm. NHG /o:/ is written o, Bote, loben, oh, froh, bohren, Lohn and oo, Boot, Moor, Moos. NHG /ø:/ is written o, stößt, schön, and uh, verschönren. NHG /e:/ is written e, treten, legen, Weg, ee, See, Meer, and eh, sehr, dehnen, hehlen. NHG /e:/ is

21) V. Moser 1929, paras. 6-11.
written a, sät, lätten and ah, zählen. NHG /a:/ is written a, Vater, Name, Pfad, aa, Haar, Aas, Saal, Staat, and ah, Bahn, lehm, Bahre, nah.

In NHG all three of these ways of designating long vowels are used, but the method varies from vowel to vowel and is not predictable. The single vowel signs have been used, and still are in NHG, to designate long vowels particularly before r, mir, and before single consonants in open syllables. The lengthening of short vowels in this position has not been reflected in the spelling; most of the attempts to designate long vowels have been made for NHG long vowels. Length signs are used to distinguish homonyms, e.g. malen, mahlen; mehr, Meer.

6. 1. 3. The exceptions to the lengthening of short vowels in open syllables

The first step, the so-called lengthening of vowels in open syllables, shows a great many exceptions before /t/: NHG sitte, NHG Sitte. These exceptions, i.e. where we have a short vowel instead of the expected long vowel before NHG /t/, explained as follows:

1. Through the influence of the following -er, -el, -en.
2. Through levelling among the inflected forms.

If followed by a syllabic -er, -el, -en, then the lengthening did not occur. The vowel was syncopated and the syllable became

22) Grosse 1967, 126, wants introduce aa, ee, oo, uu, ie, uu, etc., as signs for long vowels before obstruents belonging to the same syllable.
closed, with the result that the lengthening did not take place: i.e. [himel] became [himl]. Von Kienle is more careful and maintains that the influence of -er, -el and -en on the following syllables of words which retain their MHG short vowel must be examined in more detail. In fact there are both forms with and without lengthening before -er, -el and -en. Before -er the following forms have undergone lengthening: MHG vater, NHG Vater, before -el: MHG schemele, NHG Schemel, and before -en, MHG beten, NHG beten, MHG ne\_men, NHG nehmen. There are, however, no examples of lengthening before MHG /m/ + -er, or before MHG /t/ + -el. There are examples of short vowels being retained before all three endings: MHG hamer, NHG Hammer, MHG vetter, NHG Vetter; MHG himel, NHG Himel, MHG satel, NHG Sattel; MHG kemen, NHG kommen, NHG schaten, NHG Schatten. Thus the occurrence of short or long vowels cannot be predicted by a regular rule of sound change.

It is also said that in noun inflection there is a levelling out within the noun paradigm, sometimes of the long vowel and sometimes of the short vowel. It is especially in the weak declension that forms like NHG Bote with a long vowel, and Gatte, with a short vowel, are to be found. In the past participles


24) Von Kienle 1960, para. 35, 2b.
there is a short vowel in the strong verbs of first and fourth
MHG vowel-gradation classes, MHG *geritten, genommen*, but long
vowels in the second and fifth vowel-gradation classes, MHG
*geboten*, (but *gesotten*), and *gebaten*.\(^{25}\) Numerically, however,
there are more cases where the MHG short vowel has been retained:
fifty-four before MHG /t/ and eighteen before MHG /m/, as against
twenty cases before MHG /t/, and six before MHG /m/, where the
vowel has been lengthened.\(^{26}\)

It has been pointed out that the situation in standard NHG, which
has some words with lengthened reflexes of MHG short vowels and
some words in which the short vowels have not been lengthened,
is based on the ECG dialects.\(^{27}\) This certainly accounts for
their provenance, but does not explain how they arose.

Why are these exceptions? Are we forced to regard the cases
where there is no lengthening as exceptions? It is our belief
that we are able to prove that those cases where we have length-
ened vowels before MHG /t/ and /m/ are to be considered as
exceptions, rather than regarding the cases where short vowels
are retained as exceptions.

The fact that consonant length was phonemically relevant for
MHG /t/ and /m/ after short vowels is the reason why we have

\(^{25}\) Paul 1916, II, para. 36.
\(^{26}\) The figures are from Von Bahder 1890, 87.
\(^{27}\) Eitzert 1898, 514.
exceptions to the lengthening. Our proof will be carried out chiefly with reference to MHG /t/. The MHG opposition /t/ : /tt/ was an anomaly in the MHG consonant system. It was the only example of consonant length being phonemically relevant among the obstruents and also it did not have a very high functional load. It was quite conceivable that it would be eliminated, and this, in fact, was what happened. MHG /t/ and /tt/, which only contrasted after short vowels, merged, and the resultant sound [tt] was no longer a phoneme but rather an allophone of MHG /t/, the short variant [t] occurring after long vowels, exactly like the allophonic variation between [f] and [ff], [s] and [ss] spelt z and zz, [p] and [pp], and [k] and [kk], written ck. This has happened in the South Western dialects of German. In these dialects we have lengthening before voiced or lenis consonants, and before /t/ we only have lengthening in the reflexes of MHG bote, vater, waten, krote, and even some of these words occur with a short vowel in certain areas. MHG gebet, gebot, mete, kneten, beten occur only with a short vowel in these dialects, whereas in standard MHG they have a lengthened vowel. The merger of MHG /t/ and /tt/ is recorded early.

28) Fourquet 1963, 86f.

29) Fischer Schwäbisches Wörterbuch (SchwWb) 1904f.: bote 1, 1323, vater 2, 977, kneten 4, 523, beten 1, 948, waten 6/1, 502, kröte 4, 783, gebet 3, 127, gebot 3, 131, mete 4, 1639; Martin and Lienhart, Wörterbuch der elsässischen Mundarten (WbEM) 1899f.: vater 1, 155, beten 2, 112, treten 2, 767, bote 2, 117, waten 2, 878, kneten 1, 509, kröte 1, 527.

30) Fourquet 1963, 87.
Von Bahder has also drawn our attention to this, but he tried to consider the words with retained short vowel as imports.\(^{31}\)

The other dialects do not present such a clear picture. There are forms with retained short vowels and forms with lengthened vowels, but in most cases the forms with a shortened vowel seem to be more numerous.\(^{32}\)

It is quite plausible to assume a merger after short vowels of MHG /t/ and /tt/ in [tt]. The next stage is to show whether, in the cases of a lengthened vowel before MHG /t/, it is due to other factors, e.g. analogy, or spelling which may have influenced the pronunciation.

The main words with a lengthened vowel before MHG /t/ are:

Vater, Bote, geboten, Zote, beten, knten, trten, jten, waten, Spaten, Knoten, Kater and Krte\(^{33}\), and these will be dealt with individually.

The word Vater has a short vowel in many dialects.\(^{34}\) Schottel spells it with only one t\(^{35}\) and Gottsched regards the spelling 'Vater nicht Vatter' as the better one.\(^{36}\) The occurrence of Latin pater with one t may have contributed to the spelling with

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31) Von Bahder 1890, 87f.
33) see Russ 1969, For a criticism of the view put forward here, see Reis 1974, 246ff.
34) Müller, Rheinisches Wörterbuch (RhWB) 1928f. 9, 88, Schmeller, Bayerisches Wörterbuch (BayWB) 1872, 1, 849.
35) Schottel 1437.
36) Gottsched 115.
one t. Vowels before a single consonant followed by [a] are pronounced long in NHG and so the spelling, which has been accepted as standard, seems to be the main reason why this word has a lengthened vowel in NHG.

Bote, geboten: the long vowel in these words can probably be explained by analogy with the singular of the past tense, MHG bōt. All the forms of this verb have long vowels in NHG and the forms of the verb were probably instrumental in producing a lengthened vowel in the noun. This analogy is primarily one of form and it is not clear whether many native speakers would recognize any connection between der Bote the noun, and entbieten the verb.

For a long time the word Zote 'obscenity' was written Zotte, and it was probably connected with Zotte 'hair'. As with Vater the spelling with a single t seems to have led to the vowel being pronounced long in NHG.

The words beten, kneten, treten, jichten, and waten can be considered together since they are all verbs. Waten belongs to the MHG sixth vowel-gradation strong verb class, but in NHG it has become weak, and all the others belong to the fifth class. They all show long vowels in every form, the infinitive, present, past tense and past participle. In MHG only the past tense plural had an original long vowel, cf. MHG treten, trete, trat, traten, getreten. Since there were verbs with stems in voiced consonants,

37) Kluge/Mitzka 891.
in this class, e.g. geben, where lengthening would occur regularly, their pattern has forced itself on verbs like treten and beten. The other verbs have become weak in NHG.

The word Spaten is first recorded in UG in 1469 and occurs infrequently. Even as late as the eighteenth century it frequently had the form spade, which perhaps points to a loan from Low German, cf. English spade. The spelling with t is recent. If the word originally had d, then it must have undergone regular lengthening and eventually it came to be spelt with t. The word Knoten was also written with a t or d, but it is not clear which is the more recent spelling. Here again the pronunciation with a long vowel is connected with the spelling.

The word Kröte 'toad' is an EGG blend of NHG krete and krote, which, according to the Deutscher Wortatlas, is recorded from Thuringia to Silesia, from Brandenburg via Posen to East Prussia and towards Stettin. The Luther Bible has three occurrences of Kröte and from there it found its way into the standard NHG.

The word Kater 'tom cat' has many synonyms in its word-geography. The form Kater with a long [a:] occurs chiefly in Central and Upper Bavarian. In the Palatinate it becomes Karer. In Alemannic there are the synonyms Rolle, Rolling and Bohle.

38) Kluge/Hitzka 721.
39) Kluge/Hitzka 384.
40) Deutscher Wortatlas (DWA), 1951ff., Bd. 4, Map 'Kröte'; Kluge/Hitzka 407.
ZCG also has many other forms, and it seems that *Kater* with a long [a:] must be a borrowing from another dialect, although it is not certain which one.  

Nearly all the examples of the words with a lengthened vowel before MHG /t/ can be explained by analogy, spelling pronunciation or dialect borrowing. Only *Kater* and *Kröte* are less certain.

On the basis of this we can now suggest that those words which have retained a short vowel before MHG /t/ be regarded as regular, and that the words where the vowel has been lengthened should be regarded as exceptions. This is the exact opposite of what has been said hitherto.

The same is true of lengthened vowels before MHG /m/. Again we assume a merger of MHG /m/ and /mm/ in [mm] after short vowels but there is no clear reflection of this in the dialects, as was the case with MHG /t/ and /tt/. There are only five words which have a lengthened vowel as the reflex of a short vowel before MHG /m/: *Schemel, Name, nehmen, schämen, ziemen,* whereas *Kümmel, sammeln, Schimmel, Semmel, tummeln, genommen, kommen,* *zusammen, Ammer, dammern, Hammer, Kammer, Nummer, Schimmer,* *Schlummer, Sommer, Trümmer,* have retained their short vowel. The cases with lengthened vowels did not come about by sound change but by analogy or some other way, although the reasons for each word are not clear. In MHG there is also an opposition after short vowels between /n/ and /nn/, *manec* : *manne,* and perhaps /l/ and /ll/, *sulen* : *alle,* but

41) *DWA* Bd. 2, map 'die männliche Katze'.
examples are hard to find. There may also be an opposition /r/: /rr/, but there are really only two examples of MHG /rr/, "härre" and "durre", the latter contrasting with "täre". Before MHG /r/, however, we always have lengthened vowels, which may be due to the phonetic quality of /r/, since before /r/, even in monosyllabic words, lengthening has taken place in MHG. This is not the case, however, before MHG /l/ and /n/, where there are both lengthened vowels and short vowels. Before MHG /n/, Donner and Banner seem to be the only examples with a retained short vowel. Before MHG /l/ there are more examples: "Füllen", "Eller", "Koller" and "Süller", whereas in "stehlen", "zählten", "befahlen", "spielen" the vowels have been lengthened. In view of previous arguments we should again like to regard the cases with lengthening as exceptions and assume a merger of short and long consonant in a long consonant after short vowels. Through analogy, and for some other reasons, lengthening has occurred in the other words.

6.1.4. The subsequent development of vowel length in New High German

After the lengthening of short vowels before voiced consonants there were therefore two types of syllables in late MHG: 1. VCCo "brücke", and 2. VCCo "rede". These two types probably never existed completely on their own, as there are a few examples of different types, but nevertheless after the lengthening of MHG short vowels in open syllables there must have been two main types. In type 1 all the consonants were voiceless and in type 2 all the consonants were voiced, except for the exceptions before /t/, which have been dealt with in 6.1.3. If a phonological analysis were to be made at this stage in the development of the vowels, it
would have to be decided which feature was to be regarded as phonemically relevant and which allomorphic, or in generative terms, which features would go in the underlying phonological representation and which would be predicted by rules. Theoretically there are three possibilities:
1. Vowel length could be treated as phonemically relevant,
2. Consonant length could be treated as phonemically relevant, or
3. Since voiced consonants occur after long vowels, apart from /t/, and voiceless consonants after short vowels, voice could be taken as phonemically relevant, and vowel-consonant length predicted from it. In fact the last possibility is what is assumed to have happened in Bavarian, where vowel length is predictable from consonant length: long vowels occur before short lenis obstruents and short vowels occur before fortis obstruents. In Upper Bavarian dialects the fortis consonants are always long and the lenis consonants are always short. Keller assumes two developments from MHG to this state: 1. The lengthening of short vowels in open syllables before single lenis consonants and also the lengthening of all short vowels in monosyllables before both fortis and lenis consonants, 2. A shortening of long vowels before fortis consonants in disyllabic words. This would mainly affect those vowels before MHG /t/.

In the Central Bavarian consonant lenition the fortis and lenis sounds merged in lenis consonants medially and finally (see 5.2.2.).

This, however, still does not bring us to the present situation in Bavarian. For this, a further split of the lenis obstruents created by the merging of fortis and lenis in medial and final position into new lenis and fortis sounds is needed. However, exactly how this came about seems uncertain: "More data and considerable further study is needed to fully comprehend the mechanics of this transition".\(^{44}\) The tentative answer would seem to be that after the consonant lenition, the vowel length had become all-important and new allophones could arise, fortis consonants after short vowels and lenis consonants after long vowels. Another possibility might have been that although the obstruents merged phonemically, phonetically the difference between lenis and fortis was still retained but became allophonic. Too little is known about the phonological process of consonant lenition for a conclusive answer to be given. But it shows the carrying through of the theoretical developments, vowel length becoming predictable. The second possibility, that consonant length became phonemically relevant, seems to have occurred only in Upper Bavarian.\(^{45}\) The first possibility, that vowel length becomes phonemically relevant, is the solution chosen by standard NHG, and by those dialects (apart from Central Bavarian) which underwent consonant lenition, e.g. Alsatian, Rhine Hessian. In these dialects both the fortis: lenis opposition and, to a large extent, consonant length have been lost, both

\(^{44}\) Kufner 1960, 27.

\(^{45}\) Kurath 1965.
phonetically and phonemically. They present two syllable types: VCe and VV Ce. Although it is said that there is a merger of fortis and lenis stops, this is really only true of the dental series, MHG /tt/, and /t/ and /d/ have become /d/. In the labial and velar series, the medial fortis stops have become lenis stops, but the lenis stops have become fricatives, [b]>[w], [g]>[j,y] (see 5.2.2.). The standard language has avoided the consonant lenition and spirantization of the lenis stops. Spelling and the speech habits of Low German speakers were probably influential here. In NHG, however, vowel length, as mentioned above, has become the main feature separating Betten from Beeten. There is no trace of any consonant length in NHG and the only pointer as to when it began to lose its phonemic importance is when *are used wrongly in the fourteenth century. We do not know when long consonants were lost phonetically. Some UG dialects still retain them phonetically and possibly their allophonic use may have still been present in South Germany as late as the eighteenth century.

Siebs prescribes a close pronunciation for all long vowels except [E:], and open pronunciation for all short vowels in NHG but this is only valid for North Germany, because in South

46) Hall 1973, 16-49.
47) Philipp 1965, 26ff.
48) Kräuter 1876, 573.
49) SDS II, maps 182ff., Kranzmayer 1956, para. 34g says that the geminates are being replaced by single consonants.
50) Siebs 1958, 28.
Germany there still seems to be only a difference in length, the vowel quality remaining the same.\textsuperscript{51} This difference in quality, that Siebs prescribes, has led many phonematicists to discuss whether vowel length or vowel quality is phonemically relevant in German phonology.\textsuperscript{52}

Similar quantitative changes have taken place in other Germanic languages, and it is worthwhile looking to see if there is any general pattern of development, and how German fits in with this. It is generally assumed that the oldest Germanic languages present a quantitative distinction between long and short vowels, but how far this may have been accompanied by a difference in vowel quality is difficult to ascertain. One recent description attempts to avoid this question by labelling the Proto-Germanic vowels short/lax and the long vowels long/tense.\textsuperscript{53} For Old Icelandic we are fortunate in having the evidence of the so-called First Grammarian who clearly distinguishes between short and long vowels. Length, rather than quality, seems to be the decisive perceived feature, whereby the two sets of vowels are distinguishable.\textsuperscript{54} His evidence can probably be taken for the rest of the Germanic languages at this time. From the evidence of the First Grammarian it can be seen that, apart from word-final position,

\textsuperscript{51} Keller 1961, 36 and 209.
\textsuperscript{52} Moulton 1962, 61ff.; Reed 1965, 41-47; Werner 1972, 24-50 gives a survey of the secondary literature.
\textsuperscript{53} Antonsen 1972, 118ff.
\textsuperscript{54} Benediktsson (ed.) 1972, 137ff.; Haugen (ed.) 1950, 34.
where the contrast in neutralized, short and long vowels contrast. In modern Swedish and Norwegian this is no longer the case, length has become fixed: "every stressed syllable must contain either a long vowel or a long consonant". The opposition of quantity is no longer free but fixed.

Generative descriptions of these languages suggest that underlying vowels not marked for length be posited and that vowel quantity can be predicted by two rules:

1. "A stressed vowel becomes long if it is not followed by at least one consonant", and
2. "a consonant becomes long if it is preceded by a stressed short vowel".56

This fixing of quantity has also taken place in modern Icelandic and Faroese, in Bavarian, as we have seen, and in some Scottish dialects.57 German did not reach the stage where vowel length was predictable, but in late MHG it might have done. There were only two syllable types, VCCa and VVCa, but there was a short: long contrast before /t/. Through the merger of MHG /t/ and /tt/, length would have become predictable. However this did not come about. For various reasons, the influence of spelling, analogy, and sociolinguistic factors, such as learning of High German by Low German speakers, the opposition of length in vowels has increased its scope, and vowel length has become free∀ and is

55) Haugen 1965, 38.
57) Lass 1974, 9-16.
no longer so predictable as it must have been at one time.

Many words of Low German origin of the syllable structure VVCs,
where the consonant is voiceless, were introduced into the
language: hapern, Käser, Kiene, Köner, niepen, schrapen, Stapel,
Küken, Laken, Lüke, makeln, Schnake, spuken. Sometimes the
words with this structure containing voiceless stops are
onomatopoeic words: blöken, quaken, quieken, and these have
older variants with short vowels.\(^{58}\) Loan words from other
languages belong here as well, Lupe, Tüte.

Words with the structure VCCs, where the consonants are voiced,
were also borrowed into the standard, but not in such great
numbers: Ebbe, Krabbe, Robbe, schrubben, Kladde, Modder,
Roggen, Flasge, bagsern, schmuggeln, Dogge, Egge.\(^{59}\) Many words
with bb and dd came from colloquial expressive language:
buddeln, pladdern, schnoddern, grabbeln, kribbeln, sabbern, schlabbern.\(^{60}\) The noun Widder, with the MHG short vowel
retained, seems to be a case of a spelling pronunciation\(^{61}\) and
also the wish to avoid a clash with the preposition wider.

In monosyllabic words in MHG there was a phonemic contrast of
vowel length before all consonants. Before MHG final /r/ all
short vowels lengthened in late MHG. This has chiefly affected
the pronouns and articles, e.g. MHG er, ir, mir, dir, der, wer.

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59) Paul ibid., paras. 147, 208, 178.
60) Kluge/Mitzka krabbeln 397; kribbeln 404; sabbern 517; schlabbern 651.
61) Dt. Wb. 14, 1, 2, 861f.
In NHG all pronouns are lengthened before /r/. This has also occurred in other words: bar, Bar. Theoretically this should have meant a neutralization of vowel length before /r/, but this is not the case, since short vowels also occur in this position in NHG: irr, wirr, durr, Narr, Herr. In all these cases, however, the MGH forms had a final -e: irre, wirre, dürre, narre. In NHG herre the vowel was long and it has been shortened in NHG. The lengthening of short vowels before /r/ would not have affected these words, since they would have still retained their final -e and probably their long consonant as well at that time. However, when the final -e was lost and the long consonant shortened, they would then be in contrast with long vowels, since they would have become monosyllabic words. The loss of final -e after /r/ is regular in the development of German. The archaic form Herre and the South German Türe would seem to be the only exceptions. The colloquial forms of the second person sing. imperatives of starren and sperren, e.g. starr' and sperr' also provided the modern language with another source of short vowels before /r/ in monosyllables.

Lengthening before final /n/ and /m/ also occurred in the pronominal system: MGH in, den, wen. Here no theoretical merger was possible, since the lengthening took place only in the pronoun system. Other short monosyllables in -n remained short, the preposition in, the noun Sinn, MGH sin, the past tense form, rann, the verb form kann, MGH kan. Monosyllabic words with short vowels before final /n/ were increased by the loss of final -e and the shortening of long consonants: "dunn, MGH "dunne,"
denn, MHG denne, wenn, MHG wennen, Kinn, MHG kinne. The NHG words Hahn, Schwan, Sohn; MHG hane, swane, sune, underwent regular lengthening before the loss of the final -e.

Before MHG final /m/ the situation appears to be different: there is a regular lengthening among the pronouns: NHG ihm, dem, wem, and also in the adjective lahm and among the preterite singular of the verbs of class four, NHG nahm. Again this did not result in a merger, since in verbs of class three, klimmen, the past tense sing., klomm, retained its short vowel. Also there are examples of MHG short monosyllables ending in /m/ whose vowel did not lengthen in NHG: Damm, Stamm, fromm, Schlamm, MHG tam, stam, vrum, slam. These forms were increased by analogical changes. The medial MHG cluster [-mb-] became assimilated to [-mm-] which was shortened in MHG to [-m-], MHG lames, NHG Lammes (see 5.6.1.). This left a morphological alternation between medial mm and final mp, which was levelled out in favour of mm, and this has produced many NHG monosyllabic words with a short vowel before final m, Kamm, dumm, Lamm, schlimm, um, MHG kamp, tump, lamp, slimp, umbe.

In the pronoun system these changes are all regular: all short vowels before /r, n/ or /m/ in monosyllables are lengthened. In his generative account of German phonology, Wurzel formulates this in the following sub-part of a rule: 62

The specification \([-\text{obstr}\]) specifies not only /r/, uvular or dental, /n/ and /m/, but also /ŋ/ and /l/. However since no determiners end in either of these last two consonants, the general specification does not matter.

Siebs always prescribes long vowels for NHG: ihr, ihm, ihn, wem, wen, mir, dir, but for der, dem, den he also 'allows' a short close vowel: "Das lange geschlossene e(e:) der Pronomina er, der, dem, den ... kann in unbetonter Stellung bei schnellem Sprechen gekurzt werden, bleibt aber stets geschlossen". These pronouns have two forms, a lengthened one used in formal speech and a short one in colloquial speech. Although Siebs does not mention it, these shorter forms are more widespread than he realises, but they have long been neglected in phonetic study. In recent years, however, attention has begun to be focussed on them, and these 'weak' forms have been recorded for wir, and must also be assumed for the other pronouns, as well as conjunctions and other particles. The pronoun lengthening is really only valid for one particular style of speech.

The lengthening of short vowels before single voiced consonants led to an alternation in noun inflection between long vowels, cf. pl. [taːge] gen. [taːges], dat. [taːge] and a short vowel.

63) Siebs 1958, 42.
64) Keinhold 1967, 609-612.
nom./acc. sing. [tak]. In North German speech this alternation has remained to a large extent, as must also have been the case in later MHG after the lengthening in open syllables. In standard NHG, however, this alternation has been levelled out in favour of the long vowel of the oblique and plural forms, [taːk], [taːges], although there has been no change in the spelling. Only in the cases of NHG Ritt, Schnitt, Tritt, and Zinn has there been a levelling out of the short vowel. This has traditionally been explained as analogy, the exceptional nom/acc. sg. forms being reformed on the analogy of the other forms. Generative linguists, such as King, have sought to explain this levelling in terms of rule reordering. NHG had a devoicing rule, assumed to be still present in NHG, which from underlying /tag/ produced [tak], tac. The vowel lengthening rule was then added to the grammar, which produced [taːges] from underlying /tages/. However in NHG, [tak] has been replaced by [taːk] (with a long vowel), and King suggests that this can be explained by a reordering of these two rules. Thus, given the underlying forms /tag/ and /tages/, the application of the vowel lengthening rule first will give [taːg], [taːges], and then the application of the devoicing rule will give [taːk], [taːges]. This is the exact

65) We will keep the nom. form [tak] for North Germany, since it is near the standard form [taːk]. Most North German speakers would use the form [tax], however.

reversal of the original order. The final devoicing rule was added at the end of the OHG period, and the rule which lengthened vowels in open syllables, about 1300. Rules which lead to levelling can be reconstructed from relic forms, in this case the NHG adverb weg, which, unlike the noun Weg, retains its original short vowel. 67

However it has been pointed out that in North German colloquial speech not all nouns have remained with short vowels in the nom/acc. sing., but some have levelled out the long vowel of the oblique cases. 68 In fact the reflex of the example which King quotes, MHG lob, never seems to be pronounced with a short vowel at all! Paul recognizes that the alternation between short and long vowels only occurs in a certain number of words: Schlag, Tas, Betrag, Bad, Rad, Grab, Gas, Glas, Grass, Trog, Hof, Zug. 69 Furthermore some words like Steg, Lob, Hof never have a short vowel in North German colloquial speech. Standard German has a regular analogical lengthening of short vowels in monosyllables before final voiceless consonants, which alternate with medial voiced consonants. This is probably supported by the fact that in the Alemannic dialects, even those which did not undergo the lengthening of short vowels in open syllables, short vowels before NHG lenis consonants are lengthened. This also happens

67) King 1969, 51-54.
68) Winter 1971, 152f.
69) Paul ibid., para. 34.
in some EGG dialects. The best solution is to say that in the standard language the long vowels of Tag, Bad are due to analogy. North German, which is often adduced to show that this analogical lengthening does not always take place, is a mixture of standard German on a Low German basis, where the analogical levelling has not spread right across the lexicon, but it is gradually spreading word by word.

Another example of analogical lengthening, which is traditionally given, concerns the past tense sing. of the strong verbs of MHG vowel-gradation classes four and five, MHG ich nam, wir nämnen, ich gab, wir gaben. In MHG the long vowel of the plural has been levelled out into the sing. as well, ich gab, ich nahm.

This is part of a general process of levelling the difference between the vowel of the sing. and the pl. in every class. This is a sub-change, which happens to involve the levelling out of a long vowel of the pl., and is not part of the general phonological process of vowel lengthening. The only cases where the past tense sing. and pl. differ in length is in classes four and five.

In classes one and two we have a case where vowel length is predictable in MHG: In MHG in the past tense sing. of verbs of these classes, short vowels occurred before both voiced and voiceless consonants, wir riten, wir griffen, wir bizzen.

70) SDS II, maps 45; Jutz 1931, 156; Becker/Bergmann 1967, 138; Kranzmayer 1956, map 22.
71) Wright 1907, para. 484.
wir schreiben. The lengthening of short vowels before single voiced consonants has meant that MHG schreiben has become NHG schrieben with a long vowel, whereas MHG wir bizzen, has remained with a short vowel. However, vowel length in these two vowel gradation classes has become predictable: short vowels occur before voiceless consonants, and long vowels before voiced consonants: er ritt, wir ritten, er wick, wir wichen with short vowels, but er mied, wir mieden, er schrieb, wir schrieben with long vowels and from class two: er schoB, wir schossen, er kroch, wir krochen with short vowels but er zog, wir zogen with a long vowels. This predictability of vowel length was also brought about in class two by the shortening of NHG long /o/ before /z/, MHG schoz, NHG schoB. Wurzel formulates this predictability of vowel length by the following sub-part of a larger rule:  

\[ (+\text{syll}) \rightarrow [\text{tense}] / (+\text{Pret}) \]

In the verbs of class four and five, vowel length is not predictable, long vowels are found both before underlying voiceless

72) In class two the verb MHG bieten, bot, boten, geboten, is an exception to this rule and must be marked as such in the lexicon in a generative approach.

73) Wurzel 1970, 75. Vennemann 1968 b, 396, assumes a general vowel lengthening rule for MHG, which lengthens short vowels before underlying single consonants, but from the examples cited here it can be seen that there is no real evidence for such a rule. Vowel length in NHG is limited to the contexts proposed by Wurzel in his rule.
and voiced consonants e.g. saBen, lasen. Vowel length is really only predictable in the case of verbs of classes one and two in NHG. Once again vowel length in modern German is largely free. There are only some cases where length is predictable: for example before /ŋ/ and /pf/ only short vowels occur. Before /ʃ/ mostly short vowels occur. The only exceptions are wusch where the long vowel is retained by analogy with other verbs of the same class, e.g. frub, and the loan words Nische and Dusche, which have variants with both short and long vowels. Before the affricate /ts/ and the cluster /tʃ/ long vowels do occur, but not frequently, only in words like siezen, duzen, and loan words Bratsche (see 5.1.2.). Vowels are always long in pronouns ending in -er, -er or -m and, as has been mentioned above, the occurrence of a short or long vowel is automatic among strong verbs from NHG classes one and two. In all other cases, even before some clusters, vowels length is free in NHG. Betten: Beeten; machen: brachen; Kost: Trost; Herz: Erz. A variety of factors, for example, loan words, spelling pronunciation, loss of final -e, have all contributed to making vowel length more free in NHG. The historical development in German passes from totally free vowel length in OHG through a period of largely predictable vowel length, after vowels in open syllables were lengthened, to modern German, where vowel length is largely free again. It would appear that this development is unique in the Germanic languages.74

74) This development is different from that suggested by Lass 1974, 16f., the 'West Germanic' type of vowel length conspiracy, which he assumes for German.
6.1.5. The shortening of long vowels

The shortening of long vowels before certain consonant clusters is complementary to the lengthening of vowels under certain conditions. Traditionally no real systematic change has been admitted here, but only a tendency to shortening before clusters and NHG /f, s, x/.\(^75\) A closer examination of the cases where this occurs shows a greater regularity and fewer exceptions: shortening is regularly carried through before an underlying consonant cluster containing a velar, i.e. /xt/, /qc/. This covers the usual examples such as NHG brächte, dächte, giene, fienc, NEG brachte, dachte, ring, fing, and also affects the long close monophthongs from NHG /ie, üe, uc/ NHG liecht, giene, NHG Licht, ring. Long vowels were also shortened before consonant clusters containing an n, NHG stuont, Early NHG stund, NHG pfüründe, NEG Pfründe. Where a long vowel occurs before the cluster /nd/ in NEG this is a secondary development: Hound, NHG mäne, fahnden, ahnden.\(^76\) Shortening has also taken place before NHG /rch/, NHG lörche, NEG Lörche and before /rr/ in NHG hërre and all its derivatives in NHG, herrlich, Herrscher. In NHG only short vowels appear before rch. Again the presence of a velar in the cluster is typical. The shortening before /rr/ only occurs in the word Herr and may have occurred to avoid a homonymic clash with NHG Heer, NHG her. In NHG there are no long

\(^{75}\) Wright 1907, 64; Paul 1916, II, para. 38; Bithel 1952, 163.

\(^{76}\) Paul ibid., para. 39.
vowels before a cluster containing a velar or a palatal fricative; in fact one can generally say that no long vowels in NHG appear before any cluster containing a velar obstruents. The only exceptions to this are Jagd, Magd, Vagt, and there the cluster [kt] has come about by the syncop of unstressed e, e.g. NHG jaget, maget, voyet. In the case of NHG dicht the shortening took place before the diphthongization of NHG /i/, NHG dichte. This shortening before velars also accounts for the shortening of the long unstressed /i/ of the NHG suffix liche in NHG, NHG vriendliche, NHG freundlich, whereas the NHG diminutive -lein has been diphthonged in standard NHG to -lein, and was not shortened. A generative approach would maintain that a rule such as the following was added to the grammar.  

\[ [+ \text{syll}] \rightarrow [-\text{long}] / \underline{\text{CC}} \text{ Condition } C = [+ \text{ back}] \]

Evidence for this can be seen in the derivatives of sehen, Sicht, or of geschehen, Geschichte. In Early NHG the third person sing. of these verbs was sicht, geschicht. In the case of the derivatives in -t, the rule shortened vowels before /i/ as well, geben, Gift. Among those verbs of NHG vowel gradation class four and five, which had an alternation of /e/ with /i/ in their present tense sing., the [i:] of the present was shortened before the velar fricative, i.e. sicht, geschicht. This did not happen.

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77) Vennemann 1968 b, 398, has a shortening rule with similar environments for NHG. He adds the shortening environment of /Ft/ "where F is a spirant but not /s/" i.e. graben but Gruft.

78) Paul 1916, II, para. 248, (see 5.5.3.).
to verbs whose stems ended in other consonants: lesen, liest, geben, gibt. 79 The shortening also occurred if the verb stem ended in -m or -t: nimmt, tritt.

Furthermore vowel shortening seems to apply before clusters with a velar fricative either as first or second consonant.

The other examples of vowel shortenings seem to be real exceptions. The examples usually cited are: MHG Rache, Schach, Amboß, anässig, Rüssel, müssen, Jämer, Waffen, Mutter, lassen, MHG räche, schäch, anboz, anasse, rüssel, müzen, jämer, waffen, muster. For each of these words individual reasons for the shortening must be sought. 80 The shortening is traditionally assumed to have started in the first half of the thirteenth century in CG. 81 Orthographically there are few signs of when it took place. It was carried through most regularly in EGG and East Franconian. 82

The modern German dialects show a regular shortening of MHG /ie, üe, uo/ before /x/ in EGG and of /ã/ in a smaller area in

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79) NHG gibst, gibt, although prescribed by Siebs 1958, 133 and WDA 265, as [gi:pst], [gi:pt], are most often pronounced [gipst], [gipt]. [i] is used for IPA [I].

80) Paul 1916, III, para. 168. Lassen had a form with a short vowel as early as the fifteenth century, but as late as the seventeenth century it could rhyme with words with a long [a:], Dt. Wb. 6, 1213.

81) Wright 1907, para. 139.

82) V. Moser 1929, para. 50.
EGG, although the exact delimitation of the area is not explicitly given. The area with the most shortening is Northern and Central Bavarian and Silesian—here vowels are shortened before all voiceless obstruents. In the southern part of Upper Saxon, vowels are shortened before MHG fortis fricatives and in Hessian and Rhine Franconian before all velars, in Middle Franconian before voiceless velar fricatives. 83

83) Wiesinger 1970, 2, Hessian para. 117, Middle Franconian para. 120 (1), Thuringian para. 122 (f), Upper Saxon para. 126 (e).
6.2. THE DEVELOPMENT OF THE SHORT VOWELS

6.2.1. The merger of MHG /e/, /ə/ and /ʌ/

In normalized MHG the following short vowel signs are used: i, ë, ë, ë, ë, ë, and to a lesser extent ë. All these signs, since there is no contrary evidence, with the exception of ë, can be reasonably interpreted as having been pronounced in MHG in the same way as they are pronounced in NHG. In many MHG grammars and dictionaries the sign ë is used for Germanic ë, whereas ë is restricted to the umlaut of Germanic short ë.¹ The sign ë is used for the secondary umlaut of Germanic short ë, that is, before certain consonant clusters and when the umlaut causing ë occurred in the third syllable, OHG zahari, MHG zahere.² One of the problems in MHG is to determine the phonetic value of the signs ë, ë, ë. Only UG sources use all three signs, CG sources never, at least in NHG, use the sign ë. In UG the signs ë, ë, and ë generally correspond to their historical origins, but there is other evidence for keeping them apart. MHG poets never rhymed words containing ë with words containing ë. In Bavarian, however, ë and ë are rhymed if they occur before obstruents.³ Many present day dialects in both UG and CG still keep the reflexes of the two signs apart in pronunciation. For instance, words in Swiss German containing MHG ë are pronounced with a close [e], while words with MHG ë are pronounced with a very open [a].⁴ Words in Thuringian with MHG ë are pronounced with an

¹) Paul/Moser/Schrübler 1969, para. 6.
²) Braune/Mitzka 1960, para. 27, Anm. 2.
³) Zwierzina 1900.
⁴) Keller 1961, 37f.
open [ε], while words with MHG e are pronounced with [a]. On the basis of this evidence, linguists have established two short e phonemes for MHG, /e/, probably realized as a close vowel [e], and /w/, probably realized as a more open [ε]. For UG it is probable that we have to postulate a third phoneme /v/ which had a low functional yield. It is not certain how long it is assumed to have existed in UG. Phonetically it was probably realized as a very open [m]. CG in MHG had only a twofold phonemic distinction, between /e/ and /w/. The sign ù, and presumably therefore the phoneme /v/, does not appear in CG sources in MHG. There are some UG dialects which still show a threefold phonemic distinction of tongue height among the front unrounded vowels, (excluding the most close and the most open) but only rarely does this reflect the MHG distinction /e/ : /w/ : /u/. In most cases the MHG /e/ is represented by a close vowel [e], and MHG /w/ and /u/ have merged in a very open [m]. The third vowel phoneme between these two, a half-open [ε], is of recent origin and has only a restricted distribution. A threefold distinction is found only in the East of Switzerland. The general tendency has been for MHG /a/ to merge with MHG /e/, not only in CG where this happened early, but also later in UG. In those dialects in the East of Switzerland, which have maintained the MHG threefold distinction among the

front mid unrounded vowels, this has been 'balanced' by the
split of MHG /o/ into /ɔ/ and /ɔ/ (see 3.1). This has also
happened in the Northern Swiss German dialects which have merged
/œ/ and /a/. Since the result of the merger of MHG /œ/ and
/œ/ in modern dialects is usually a very open [ə], if not [a], the
value of MHG /œ/ may have been quite open, [ɔ], rather than [ɛ].
The value of MHG /a/ was probably close, as in present day Swiss
German, but, depending on the value of MHG /œ/, it could have vari-
ed in articulation from [æ] to [ɛ]. The fact that the distribu-
tion of MHG /œ/ was limited, led to its merger with MHG /œ/. In
standard, the MHG threefold contrast /œ/, /œ/, /a/ has been reduced
to the single phoneme /œ/, which is usually a half-open [ɛ], spelt
both œ and ə. Some pedantic teachers have tried to distinguish
between the pronunciation of the two signs but their relation-
ship is a morphological one. NHG /œ/ is only written ə if the
word concerned is derived morphologically from a word with /a/ as
its stem vowel.10 This happens in NHG in certain grammatical
categories: e.g. the plural of nouns, Gäste, since a exists in
Gast, the comparative of adjectives, schwächer, schwach, the
second and third person sing. present of strong verbs, backed,
bäckt because of backen, in word formation, schwachlich, schwach.
Originally the written distinction between œ and ə did not exist,
but the sign ə was introduced into WCG in the second decade of

8) Moulton 1960, 137ff.
9) Vietor 1904, para. 52, Anm. 2.
10) Grosse 1967, 127, rejects this orthographic distinction.
the sixteenth century. It was not used to any great extent in ECG until the beginning of the seventeenth century. Since the opposition in writing between the two signs e and ë did not represent a difference in pronunciation, the use of ë was rationalized and restricted to its present day use, in derivatives of words with ë. 

In UG, however, ë was used to express a phoneme which was pronounced differently from /æ/. This seems to be reflected in the comment by Kolroß: "So ein silb oder wort ein stimm erfordert/ welche nit gantz uff das a. ouch nit gantz uff das e. ubgesprochen wurt/ sonder halb und halb/ da solt du ein a unden/ und ein klein e drob (also £) schryben. Exemplum. £l/ hål/fål/gål/strål/håring/måder/såger/hålt/fånlin/hånlin". Almost all these examples, except hålt, are of long vowels so this can only be used with caution as an example of an instruction to distinguish phonetically between e and ë. On the next page Kolroß goes on to show that the signs a, o, u are mostly used in derivatives of words with e, ë, u: "Der merentheyl wort/ so mit nachvolgenden diphthongis/nämlich a. o. u. und ë geschriben werden/haben jren ursprung von ander en worten/ welche im anfang a o ou und u haben/....knab/knäblin/ rad radlin/aff üfflin/magt mägtlin/man hånlin/man männlin/kap kåplin". Here his examples include both short and long vowels.

11) V. Moser 1929, para. 17; Fleischer 1970, para. 34.
14) Müller ibid., 68.
The CG grammarian Fabian Frangk states very clearly the use of " in morphologically related forms: "Das a/ mit dem kleinen e/ oder zweien #/ (wie obenunvermeldt) bezeichnet/ wird gebraucht/ jnn derivativis/ das ist/ jnn worten/ so ir ankunft von andern nehmen/ als die namen/ so jnn die gemehrte zal/ oder auch adverbia treten und absteigen/ darinne das a braucht wird/ als vom vater kompt väterlich/ gnad/ gnädiglich/ undertan/ undertäglich/ schad/ schäden/ schädlich u".  
However he also writes about " " " " that they are called: "halp duplirte auf eine sondere art jr aussprache haben". In this question it is very difficult to distinguish whether the authors are talking about letters or sounds. Gottsched defends the use of " in words which have related words with a: "Man schreibt also dieser Regel zufolge, von, alt, die Ältern, von Arm die Ärmel". Since he only mentions the pronunciation of " as being different from e when they are both long, presumably for him there is no difference in pronunciation between e and " when they designate a short vowel. This use of " in derivative forms has been called the etymological use of " as against the phonetic use of " for a separate sound from that written e. The former usage started in UG at the end of the fifteenth century. At the beginning of the seventeenth century it spread to CG and from there into the standard language. It occurred first of all in the plural of nouns and the comparison of adjectives.

15) Müller ibid., 98.
16) Müller ibid., 96.
17) Gottsched 72.
The second and third person sing. present verb forms were the last categories to take over the etymological principle of using the spelling ü. Some words, which are now spelt with e, were spelt with ü in the eighteenth century, e.g. Bekanntnis, Erkäntnis, because of bekannt, erkannt. The fact that the use of ü is purely morphological is shown in that it was used in rächen MHG rüchen, since there is the related noun Rache. This spelling principle was adopted by the standard. Where the etymological and morphological connection between e and ü was no longer felt, words pronounced with [ɛ] were written with e, e.g. behende, but Hände, Eltern but alteren. It was in word formation where there was the most fluctuation in the use of e and ü. Sometimes the orthographic distinction e : ü was used to distinguish homonyms: Lärche 'lark', Lärche 'larch'.

The fluctuation and eventually restriction of ü to derivative forms is a sign that any difference in pronunciation between them had ceased to exist. There is also no sign that the ü was used to distinguish MHG /ɛ/ from MHG /œ/. This fluctuation in the use of e and ü was in evidence by the sixteenth century and therefore, at that time, the merger between MHG /e/, /œ/, and /œ/ had taken place. There was undoubtedly a great deal of fluctuation in speech between these three sounds. Even in the present day there is a fluctuation in Austrian colloquial speech.

18) Moser 1929, paras. 70, 1, 2.
19) Paul 1916, II, para. 47.
between open [ɛ] and close [e]. When Low German speakers learnt High German, which only used " in morphologically derived forms, they pronounced all the words spelt with e in the same way since they had no distinction between [ɛ] and [e]. This variety, which was supported by the lack of distinction in spelling between the reflexes of MHG /e/ and /ɪ/, has become the standard prescribed model. The merger of MHG /e/, /ɪ/ and /ʊ/ in /e/, [ɛ], is due to the lack of orthographic distinction between MHG /e/ and /ɪ/ and the spelling pronunciation of Low German speakers, whose variety of pronunciation became the accepted model.

6.2.2. The realizations of the reflexes of MHG /a/

The reflex of MHG /a/ is very open and low in some dialects. This has apparently forced low MHG /a/ to become more back and rounded. The pronunciation of MHG /a/ as [ɒ] occurs in most CG and UG dialects, but this has not been reflected in the standard. The force of spelling the reflex of MHG /a/ in the standard has obviously influenced the retention of the pronunciation [a]. In North German, where the LG dialects do not have such a low front unrounded vowel from Germanic ə, MHG /ɪ/, but a half-open [ɛ], MHG /a/ has not been rounded to [ɒ], but has been palatalized to [ɐ], similar to the English [a] in man. Since both English

20) Luick 1923, para. 139.
22) This is my own observation of colloquial North German of some speakers in Hamburg and Schleswig-Holstein. Keller does not mention this in great detail: 1961, 307, "[a] is an advanced low-tongue vowel", and, 345, "[a] is a low-tongue vowel". Before /ɪ/, MHG /a/ is rounded in North German, olle for alte.
and Danish have this palatalization of Germanic short \( \text{a} \); it is quite possible that the North German pronunciation \( [\text{a}] \) is old. Neither \( [\text{a}] \) nor \( [\text{D}] \) has been accepted by the standard, which prescribes the low central \( [\text{a}] \) for the reflex of MHG /\text{a}/. The rounding of MHG /\text{a}/ to \( [\text{D}] \) was noticed by the CG Fabian Frangk: "Als/die Francken jnn jrer angebornen sprach/ nemen das o für das a/ .../ als/ wenn sie sprechen/ ko sog mer/ wos est dos". Probably he means East Franconian and South Rhine Franconian speakers, but it was possibly more widespread than that. Kranzmayer shows that \( [\text{D}] \) for MHG /\text{a}/ occurs in the whole of Bavarian but he says nothing about how old this pronunciation is. In Low Alemannic, rounded \( [\text{D}] \) does not seem to have existed but it has developed later. The DSA maps are difficult to interpret, since the influence of the spelling is great and many informants who probably use \( [\text{D}] \) have written it \( [\text{a}] \). The words Frack, and the old form of boxen, baxen, reflect the unrounding of ME /\text{o}/ rather than the rounding of MHG /\text{a}/.

23) Müller 1882, 106.
24) Kranzmayer symbolizes the rounded sound as \( \text{a} \) and \( \text{q} \), 1956, para. 1: "\( \text{a} \) klingt bereits ein wenig dümmer, \( \text{q} \) ist nur um eine kleine Nuance heller als das bühnendeutsche -\text{o}-in 'Rock' und \( \text{o} \)."
26) Martin 1959, 27 comments on the DSA maps 10 machen, 65 alte, 83-86 Salz: "Die einzelnen Karten bieten immer wieder andere Bilder, so daß es unmöglich ist, etwa eine typische Zeichnung zu entwerfen".
Fachen was recorded in Early NHG as fochen.  Again the change from o to a does not reflect the rounding of NHG /a/, but it may have been intended to provide a derivative containing the letter a for the noun Fächcher.

6. 2. 3. The lowering of NHG /u/ and /u/

In CG dialects there is a general lowering of the reflexes of NHG /i, u, u/ but only in the case of the lowering of NHG /u, u/ have words which have undergone this change been selected by the standard language. There has been no change in the phonemic system but only in the incidence of these phonemes.

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<td>Brunne</td>
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<td>Sunne</td>
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<td>Gennen</td>
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<tr>
<td>Trummel</td>
<td>Trommel</td>
<td>sumer</td>
<td>Sommer</td>
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MHG /u, u/ have been lowered to [ɔ, œ] before /mm/ with the sole exceptions of Brunnen, which also has the variant Bronnen, and Brünnle 'chain-mail'. This change can best be seen among the verbs from MHG vowel-gradation class three, geronnen, gewonnen, as against gesprungen, gebunden. Before/mm/ this lowering is also regular in the past participles of vowel gradation class three, e.g. geschwommen. Before/m/ in other forms, however,

both /u/ and /o/ occur in NHG, *dumm* but *framm*. However in most of the examples where /u/ occurs before NHG /mm/ this was /mb/ or /mp/ in MHG, *tump*. NHG *Hummel* had both forms with and without /mb/ in MHG. 

28 NHG /u/ has been lowered before MHG /m/, but not before NHG /mb/. The subsequent merger of NHG /mb/ and /m/ has given NHG this occurrence of both /u/ and /o/ before /m/. The only exceptions to the general lowering of NHG /u/ to /o/ before NHG /m(m)/ are onomatopoeic words such as *summen, brummen* and the loan word *summe*. 

30 The word *bummeln* was first used in the eighteenth century. 

31 Before the other KHG clusters of a nasal followed by an oral stop /ŋ, ɡk, nd, nt/ no lowering has taken place in the standard, except for *sondern* which is an EKG form, although this has happened in CG dialects. Some CG dialects only show a lowering of short vowels before a nasal plus a stop. 

33 It is a general characteristic of nasals that they tend to lower the vowels that occur before them. This is especially true when the vowels preceding them are also nasalized. 

34 Standard NHG, however, has lowered reflexes of NHG /u, u/ before NHG /mb/, /nn/ and /n/, but not before NHG /ɡɡ, ɡk, nd, nt/. This does not seem to reflect the

28) Kluge/Mitzka 319. 
29) Kluge/Mitzka 104 records *as late OHG*. 
30) Kluge/Mitzka 764. 
31) Kluge/Mitzka 111. 
32) Kluge/Mitzka 716. 
33) Von Polenz 1954, paras. 13b, 9b. 
34) Ohala 1971, Chen 1973 a, b.
situation in any CG or UG dialect and is a compromise selection by the standard. It could be phonetically motivated since the high vowels are retained before the high consonants, /ŋg, ŋk/, and before the coronal consonants, both of which have high tongue positions in the mouth and would tend to prevent the high vowels from being lowered. MHG /o/ never occurred before /ŋg/ but this has been changed by the introduction of loan words such as Gong, and names such as Kongo. Also in North German the sequence [ɔŋ] has been introduced into colloquial speech to render the French back rounded nasal vowel [ɔ], e.g. Bonbon, Ballon, Balkon, Fonds. Siebs always prescribes a nasalized vowel [ɔ] for them, but this is not used in North German colloquial speech. There has also been a lowering of MHG /u/ to /o/ in MHG Trotz which retains its high vowel in the phrase Schutz und Trutz. It could also be the case that MHG had both forms as variants and that Trutz has become restricted to this one context. The two forms sonst and sunst were in competition until the sixteenth century when sonst became the main form. Some apparent examples of lowering, e.g. MHG antwerten, NHG antworten, MHG gülden, NHG golden, are due to these words being reformed on the basis of the words Wort and Gold. The replacement of MHG kunde by NHG konnte may be due to the presence of the variant konnte even in MHG in some dialects. It may also be

35) Kluge/Hitzka 264 records only in the nineteenth century.
36) WDA Bonbon 184; Ballon 184; Balkon 168; Fonds 251.
37) Siebs 1958, 50f.
due to analogy with the infinitive MHG *k"nnen*, which was regularly lowered to *k"nnen*.\(^{38}\)

The lowerings that we have mentioned have been reflected in changes in spelling, but in North German speech there is a more general lowering of short vowels before nasals and other consonants, which is not reflected in the spelling of NHG. This general lowering of the reflexes of MHG /i, u, u/ does not involve any mergers and most speakers are not aware of it.\(^{39}\) Some people however, have noticed it. Thomas Mann was aware of it—one of his characters in his novel Buddenbrooks says the following: "Sei glichkeit, **du** gutes Kind". This lowering seems to have started in Middle Franconian, but did not spread into EOG to any great extent. The only cases of lowering in the Chancery language are those which were later accepted by the standard.\(^{40}\) Even in those dialects which have undergone extensive lowering of MHG /i, u, u/ no mergers have come about since the mid vowels have also been lowered. Thus the spelling could remain the same but the realization of the phonemes would be different. This would also have no effect on the spelling

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38) Paul 1916, II, para. 76.

39) The lowering is only sporadically recorded in the DSA, Martin 1959, 28, "Die Senkung des i zu geschlossenem e kommt auf der Karte nicht klar heraus, weil die Schreiber der Fragebogen alle i als e zu sprechen und sie als i zu schreiben gewohnt sind". The relevant maps are: DSA 4 ich, 5 dir, 17 Kind, 18 ist, 20 ist, 25 ich, 36 sich, 53 trinken, 60 hinten, 99-102 bin, 103-111 sind.

40) V. Moser 1929, paras. 72 and 74.
of the phonemes. In Upper Hessian there was a merger of MHG /u, ʊ/ and /o, ɔ/. It is not clear how widespread this is, but if it is widespread, it may be the reason why forms have been adopted by the standard with ə and ʊ for MHG /u, ʊ/. A merger of phonemes is usually reflected in changes in spelling, even if it only affects a few words. A shift without merger, as in the case of MHG /i/ being lowered to [ə], MHG /e/ being lowered to [ɛ] and MHG /ɔ/ to [ɔ] need have no orthographic expression. A similar change has happened in Dutch. Middle Dutch /u/ before nasals has been lowered and merged with Middle Dutch /o/, hond, but although Middle Dutch /i/ has been lowered to [e], it has not merged with Middle Dutch /e/. The merger of MHG /u, ʊ/ and /o, ɔ/ in some dialects has been reflected by the adoption of some forms showing this merger into the standard language.

41) Ross 1973, 129
42) Loey 1959, para. 78f.
6.3. THE DEVELOPMENT OF THE MHG LONG VOWELS AND DIPHTHONGS

6.3.1. The history of the MHG opposition /e:/ : /E:/

The traditional MHG reconstructed long vowel system has one tongue height more among the front unrounded vowels than the front rounded or back rounded vowels.¹

\[ \text{iu} \quad \text{u} \]
\[ \text{u} \quad \text{ê} \quad \text{œ} \quad \text{o} \]
\[ \text{e} \]

The difference lies in the presence of both a half-close long vowel phoneme /e/ spelt ë, lören, and a half-open long vowel /œ/ spelt œ, swäre. This same type of phonemic distinction is prescribed by Siebs for standard NHG.² Many speakers, particularly in North Germany, do not have this phonemic distinction and only use half-close /e:/ . An examination of the words in the standard with /E:/ reveals that historically they come from five main sources:

1. MHG /œ/, fÜHIG, klüse, wänne,
2. MHG /œ/ when lengthened, Ähre, Trare, Hänchen,
3. MHG /œ/ when lengthened, Bar, Kafar, erwagen,
4. MHG /œ/ when lengthened, ähnlich, rahren, zählen, and
5. analogical formations, e.g. noun plurals such as Fäden, Hähne, Läden.³

¹) These orthographic signs will also be used as phonemic signs, e.g. /ã/, /I/. MHG /iu/, /œ/, /œ/ represent the phonetic values \[\text{[y:\]}, [õ:\], [E:\]}\] respectively.
²) Siebs 1958, 41.
³) Moulton 1961, 34f.
NHG /e:/ comes from the same four MHG sources and also from
MHG /e:/, but it does not occur in analogical formations.
1. MHG /a/, Seele, mehr, geben, See,
2. MHG /e/, angenehm,elig, schwer,
3. f'lHG /e/ when lengthened, treten, geben, sehen,
4. MHG /e/ when lengthened, leeren, Heer,
5. MHG /a/ when lengthened, Frevel, Pferd.

There is no sure way of saying exactly what the historical source
of a word with NHG /e:/ or /E:/ is. Both these phonemes come
from substantially the same sources. This state of affairs could
due to either of two possibilities: firstly a complete merger of
MHG /a/ and /e/ and the lengthened reflexes of MHG short /e, ü, ü/, followed by a subsequent phonemic split, which seems unlikely, as
there are no obvious conditioning factors of such a split. Or
secondly, to the fact that there was a large-scale
fluctuation between MHG /a/ and /e/ and MHG /e, e, e/, which almost
resulted in a complete merger. This again seems unlikely, since
one would expect the spelling e and ü to have become rationalized
in the same way that happened among the short vowels (see 6. 2. 1.).
Although ü, pronounced [E:], does appear in derivative forms, e.g.
Schläge, Schlage, schlängst, schlängt, schlagen, there are many
examples of long ü in isolated forms in NHG, ähnlich, Träne,
2Mare, jäten, hatscheln, Kafer, trage, dragen.

Nearly all the High German dialects have kept a phonemic distinct-
ion between the reflexes of NHG /a/ and /e/, although the phonetic
realization of the opposition varies a great deal from dialect to
dialect. Some CG dialects, the Palatinate dialect, part of South
Hessian, the west part of Thuringian and the southern part of Upper Saxon have merged the reflexes of MHG /ɔ/ and /ɔ/, as have most LG dialects. 4 Also in the colloquial speech of North Germany there is no distinction between the reflexes of MHG /ɔ/ and /ɔ/, only [e:] occurs. 5 Duden Grammatik characterizes this replacement of NHG /ɛ:/ by /e:/ as 'Nichthochlaute', one of the reasons given being that by replacing /ɛ:/ by /e:/ many words are not kept distinct. 6 What does keep the two phonemes distinct in the standard is their spelling. 7 Siebs prescribes /ɛ:/ as the pronunciation of 'a' in open syllables and 'e', and /e:/ for 'e' in open syllables, 'ee', and 'eh'. 8 It is difficult to know how closely speakers adhere to this principle in practice. The descriptions merely state that North German speakers generally do not have this distinction. However, in the general or past subjunctive forms 9 of strong verbs, e.g. waren, kam, many North German speakers will use /ɛ:/ in order to distinguish these forms clearly from the corresponding indicative forms, waren, kamen. On the other hand, some South West German speakers use /ɛ:/ for /e:/ in words like treten, heben, legen, where MHG /e, ə/ has been lengthened before a single consonant. 10 It is

4) Schirmunski 1962, 213.
5) Pilch 1966, 256.
6) Duden Grammatik 1966, 55.
7) Wright 1907, para. 120.
8) Siebs 1958, 41.
9) For the term 'general subjunctive' see Kufner 1962, 83f.
10) Siebs 1958, 40f.
highly probably that there is considerable variation in present
day colloquial speech between /e:/ and /œ:/, which has not yet
been investigated. In individual words like sucht, some speakers
use both /œ:/ and /e:/ in a seemingly random way. Paul lists
quite a few words which have /e:/, which Siebs lists as having
/œ:/: Hehl 'secrecy', bequem, angenehm, Herren, selig, stets,
fehlen. He states that the pronunciation fluctuates and that it
is the spelling with e which has caused the pronunciation
with /œ:/ to spread to these words.\(^\text{11}\) The words Frevel, Pferd
also have open /e:/ for Paul but Siebs lists them with /œ:/\(^\text{12}\).
Such fluctuations are also to be found in earlier periods of
German. Gottsched says that u should be pronounced different-
ly from e, even though some speakers do not make the distinction.\(^\text{13}\)
He does not, however, give any rules as to how these letters
should be pronounced. Adelung identifies two e-sounds: "das
scharfe, oder helle e wird am häufigsten gebraucht, ob sich
gleich alle die Fälle, in welchen es vorkommt, nicht leicht
unter gewisse Regeln bringen lassen".\(^\text{14}\) He relies heavily on
spelling in coming to this conclusion. The sequence eh, as in
gehen, or es, are pronounced 'scharf', i.e. [e:], but there are
exceptions, fehlen, hehlen, nehmen, where eh is pronounced like
\(\text{u}\), and some cases where there is fluctuation between the two
pronunciations: "In zehren, wehen, drehn, und andern mehr, wird
es selbst im Hochdeutschen bald scharf, bald aber auch offen

\(^{11}\) Paul 1916, II, para. 51, 2.
\(^{12}\) Siebs 1958, 131, 182.
\(^{13}\) Gottsched 46.
\(^{14}\) Adelung I, 1489.
He describes the other e, which sounds like u, as: "Das offene oder dunkle e, das e ouvert der Franzosen, leben, ledig, reden, Segel, lesen". All these cases, which Adelung cites with an open [ε:] written e(h), represent MHG short /e, u/ which has been lengthened in open syllables. This pronunciation was quite widespread in the latter half of the eighteenth century and even until the twentieth century. In Berlin the close /e:/ is used exclusively, but this is a more recent development. Lasch thinks that the spread of close /e:/ and consequent loss of /Ε:/, which was used for MHG /u/ when lengthened, took place during the nineteenth century and perhaps it goes back to the second half of the eighteenth century. However, in colloquial speech, if not dialect, there was probably considerable fluctuation between /e:/ and /Ε:/ in many words throughout the nineteenth century and Siebs' rule: "langes geschlossenes e(e:) ... wo die Schreibung ee oder eh zeigt", and "Langes offenes u (ε:) ... wo die Schreibung ūh zeigt, wo u in offener Silbe steht ... und wo in derselben Silbe nur ein einfacher Konsonant folgt" influenced the development, which has been that of the spread of /e:/ to all words spelt e, in open syllables ee, and oh. The decision of the original discussion of the long e-sounds in 1898 was that those spelt with ū in open syllables and ūh should be pronounced with the open /Ε:/, but

14) Adelung I, 1489.
15) Lasch 1928, 229f.
16) Siebs 1958, 41.
about other words it was said: "betrifft der übrigen langen e-Laute kann einstweilen ... keine Entscheidung getroffen werden". This is borne out by Paul's observation that selig, Hehl, fehlen, bequem, Hering have an open /E:/.

For those speakers who have the /e:/ and /E:/ distinction, the fluctuation between the two phonemes seems to have been chiefly among the words spelt e in open syllables, ee, or eh. The Siebs rule firmly established the link between the phonemic distinction /e:/ : /E:/ and the orthographic distinction e(h) : ü(h).

Its effect can be clearly seen nowadays when the linking of the phonemic distinction /e:/ : /E:/ to the spelling distinction e(h) : ü(h) has now, by and large, been completed. This type of pronunciation is now used by most speakers. It is interesting to note that what is nowadays criticized is not the use of /E:/ in such words as leben, treten, but the lack of use of /E:/ for ü(h). This is classified as 'Nicht-hochlautung' by Duden Grammatik.

During the years since the Siebs standard was first set up, one can trace the effect of the spelling rule on the phonemic system and see how the phonemic opposition /e:/ : /E:/ has been rationalized to coincide with the spelling distinction e(h) : ü(h).

The phonemic distinction /e:/ : /E:/ was present in many dialects and the spelling rule has regulated the incidence of the individual

18) Duden Hauptschwierigkeiten 95.
19) Duden Grammatik 1966, 55.
phonemes. It has proved more useful to examine the opposition MHG /e:/ : /E:/, rather than simply the one phoneme /E:/ as Moulton does, since the incidence of both phonemes has been subject to radical interchange.

6.3.2. Changes in the incidence of MHG /a/

MHG has only one long half-close back rounded vowel phoneme /o:/, but some dialects also have a half-open long vowel phoneme /ɔː/, resulting from the rounding of MHG /ʌ/ or MHG /a/ which has been lengthened. The actual phonetic reflexes of MHG /ʌ/ vary from open [ɔː] through a close [oː] to diphthongs. This change is reflected in the colloquial speech of South Germany and Austria, where MHG /ʌ/ tends to be rounded. This also occurs in some LG dialects, but it is not reflected in North German colloquial speech. The prescribed pronunciation by Siebs as a central [aː] is obviously an instruction to keep the pronunciation close to the spelling. Since MHG /aː/ has quite a large amount of phonological space, being the lowest long vowel, it can vary from palatal to velar in its articulation, but the movement towards the back seems the more usual in the dialects, since /ʌ/ in some dialects is often lowered to a very front [u] and even to [aː] in Bavarian. This lowering

20) Moulton 1961, 34f.; Fleischer, 1966, 73, also treats just the individual phoneme.
21) Schirmunski 1962, 212f.
22) Siebs 1958, 36; Viktor 1904, para. 48f.
23) Kranzmayer 1956, para. 2c.
of [æ] to [a:] the development of NHG /a:/ to the front.

Phonemically this has not affected the number or distribution of the phonemes in the standard. It has, however, affected the incidence of several words with MHG /ã/ which in NHG are pronounced with /o:/.

The following are the main examples:

<table>
<thead>
<tr>
<th>MHG</th>
<th>NHG</th>
<th>MHG</th>
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<th>MHG</th>
<th>NHG</th>
</tr>
</thead>
<tbody>
<tr>
<td>äne</td>
<td>ohne</td>
<td>bradem</td>
<td>Brodem 'steam'</td>
<td>ätem</td>
<td>Odem</td>
</tr>
<tr>
<td>mäne</td>
<td>Mond</td>
<td>trädel</td>
<td>Troddel'tassel'</td>
<td>slat</td>
<td>Schlot</td>
</tr>
<tr>
<td>mähe</td>
<td>Mohn 'poppy'</td>
<td>quät</td>
<td>Kot</td>
<td>tahele</td>
<td>Dohle 'jackdaw'</td>
</tr>
<tr>
<td>äne</td>
<td>Ohm</td>
<td>wäc</td>
<td>Woge 'wave'</td>
<td>täht</td>
<td>Doch</td>
</tr>
<tr>
<td>tahe</td>
<td>Ton 'clay'</td>
<td>brämber</td>
<td>Brombeere</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

mänöt Monat

Since the rounding of MHG /ã/ occurs in many dialects the provenance of these words is not certain. They all came to be spelt with o, they were pronounced with the same phoneme as that in Lohn, representing MHG /õ/. The rounded pronunciation was noticed in the sixteenth century but it has only been accepted by the standard in the case of these words. The selection of ohne, (Luther only has the variant on), could have been to avoid a homonymic clash with the widespread pronunciation [a:n] for the preposition and verbal prefix an.

In many cases the change of MHG /ã/ to NHG /o:/ has occurred before a nasal. This reflects the situation which developed in

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24) Vietor 1904, para. 48, Anm. 6.
25) Vietor ibid., para. 48, Anm. 2.
Early NHG in Straßburg, where MHG /a/ was written o mainly before a nasal, but to a larger extent than in the standard, e.g. gethon, sehn MHG gētān, lēn. The Saxon Chancery language of the late fifteenth and early sixteenth century shows o for MHG /a/ in those cases where they have been accepted by the standard. The variant noch for NHG nach, which also occurs in EGG sources, has not been accepted by the standard, presumably since it would have been homonymic with noch. Even in those cases where o for MHG /a/ has been accepted by the standard, there was fluctuation in spelling between a and o. The selection of the forms is almost random and a detailed investigation of each word would be necessary to establish how and why it was selected by the standard.

A special case of the replacement of MHG /a/ by /o:/ in NHG is provided by MHG dā and dō. In classical MHG dā was spatial, 'there', and dō temporal, 'then', 'when'. During the NHG period both forms merged and became do due to the rounding of MHG /a/ to [o:], and there was great uncertainty in the written language as to when to use da and when to use do. The resultant use of da for both the temporal and spatial meaning is regarded as a hypercorrect usage and as a reaction against the dialectal o for a. NHG wo 'where', appears in NHG as both wō and wā and

26) V. Moser 1929, para. 75, 2.
28) Weinhold 1883, para. 328; Paul/Moser/Schröbler 1969, para. 150, 2.
29) Behagel 1928, III, 91.
these forms were in competition even in NHG although there is no semantic differentiation, as in the case NHG da and da. 30
The change of wa to vo may have been due to the presence of the initial labial /w/. The a is still retained in etwa and warum. 31

Another source of NHG /o:/ and /e:/ is provided by some words, which in NHG have /ou/ or /ei/ respectively. This reflects the situation in many CG dialects where NHG /ei/ and /ou/ are always represented by the long monophthongs [e] and [o:]. 32 This pronunciation of the reflexes of NHG /ei/ and /ou/ has always been regarded as sub-standard and not be imitated. 33 There are, however, a few words which had orthographic variants with ei and e(e) into the eighteenth century, beide, beede; Lehm, Lehn; Feldwebel, Feldweibel; and in the sixteenth century, wernern, weigern. 34 Although some CG manuscripts show e for NHG /ei/, the Chancery of Saxony and the Archbishopric of Mainz rejected its use from the beginning. 35 The sign ei itself could equally well represent a long vowel [e:] as well as a diphthong, [ei] or [ai], since i after a vowel often signified that the vowel was long, cf. NHG Voigt (see 6.1.2.). Even today [e:] is substituted for NHG /ai/ and [o:] for NHG /au/ in some words in

31) Paul 1916, II, para. 80; Kluge/Mitzka 841.
32) DSA maps 16 heib, and, unpublished, grot, Martin 1959, 37f.
33) Gottsched 46f.
34) Paul ibid., para. 95.
35) V. Hoser 1929, para. 79, II, 1.
North German colloquial speech, e.g. keen, Been, for NHG kein, Bein, ooch for NHG auch, and, of course, the widespread form nee for NHG nein. The word doof 'stupid' is the etymologically the LG form of taub. It probably spread from Berlin into the North German colloquial speech. The substitution of [e:] for NHG /ai/, and [o:] for /au/ has taken place only in a few examples.

6. 3. 3. The merger of NHG /i, u, u/ and NHG /ei, eu, ou/

NHG has three main falling diphthongs written ei, (sometimes ai), eu (or Hu) and au. The sign Hu is used only when the word containing it has a morphologically related word with au, e.g. Häuser, Haus, lauft, laufen, Glühbirne, Claube. The use of ai is chiefly in order to distinguish homonyms, which would otherwise be written with ei, e.g. Saite, Seite, Weise, Waise. Most phoneticians transcribe them [ae], [ei], [ao] respectively, whereas Moulton transcribes them as [ai], [ei], [au]. Whether the second component of [ai, au] should be mid [e, ë, o] or high [i, u] is of no real importance, unless one intends to regard the diphthongs as biphonematic, comprising /a/ plus the glide /j/, and /a/ plus the glide /w/, where the phonetic similarity between a high short vowel to a glide is greater than that of a

36) Lasch 1928, 156.
38) Moulton 1962, 62.
39) This is the position taken by generative phonologists, Vennemann 1968 b, 91f. Wurzel 1970, 152f. There is a discussion of the secondary literature in Werner 1972, 32-35.
mid vowel to a high glide. Koulton regards the diphthongs as unit phonemes and this will also be assumed here. We will transcribe the diphthongs in ein and auch phonemically as /ai/ and /au/ respectively. Of more importance is the transcription of the diphthong in euch. Should it be transcribed [ɔj] or [ɔi]? Most phoneticians assume that the second component is rounded, but we must agree with Koulton when he maintains: "We indicate an unrounded glide because it is our experience that most German speakers unround their lips during the glide".\(^{40}\)

Viëtor also says that [ɔi] is used by many speakers.\(^{41}\) The quality of the first component of the other two diphthongs /ai, au/ varies from [æː] through [ei] to [ɛi]. It also occurs with a lengthened first component [aːi]. The diphthong /au/ varies from [au] to [ou], and it also has a lengthened first component [aːu].\(^{42}\) Historically these NHG diphthongs represent a merger in spelling and pronunciation of the NHG long close vowels and the diphthongs /ei/, /ou/ and /ou/.

\begin{tabular}{llll}
MNHG & NHG & NHG & NHG \\
min & mein & vriunt & Freund \\
ein & ein & vreude & Freude \\
vri & frei & niuwe & neue \\
snïwen & schneien & diuten & deuten \\
ei & Ei & iuch & euch \\
\end{tabular}

40) Moulton 1962, 65. Paul also regards au as representing [ɔi], 1916, II, para. 95. We will use /oi/ to transcribe this diphthong.

41) Viëtor 1904, para. 44, Anm. 4.

42) Viëtor ibid., para. 48, Anm. 5.
The long vowels probably became overlong, [ii], [gg], [ua], and then the first element was lowered, [ii] > [ei], [gg] > [uu], [ua] > [ou]. Some of these stages can be deduced from the different reflexes in present day dialects.\(^4^3\) The reflexes in standard German are the result of a further lowering of the first element in the case of [ai] and [au] and of derounding of the second element in the case of [ei].

Although the reflexes of MHG /i/, /iu/ and /u/ have merged with those of MHG /ei, ea, ou/ in the standard MHG, this has not taken place in the dialects.\(^4^4\) The only exception to this is Northern and Central Bavarian where the reflexes of MHG /u/ and /ou/ have merged in [ai] before [f] and [m], and in [au] elsewhere.\(^4^5\) Otherwise the reflexes of the two rows are kept apart, but with different phonetic realizations: MHG /i/ : /ei/ is represented as [ai] : [e:] in CG, [baiss] : [he:s],\(^4^6\) as [ai] : [a:] in

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\(^{43}\) Wiesinger 1962, 235.  
\(^{44}\) Paul 1916, II, para. 86 and 90; Trost 1953.  
\(^{45}\) Kranzmayer 1956, para. 21a.  
Bavarian, [baison]: [gaas], as [ai]:[a:] in Rhine Hessian, [bais]: [wa:s], as [i:] : [e:], in Low Alemannic, [bli:t]: [gemE:nt]. 47  Diphthongal reflexes for NHG /i/, /iu/ and /u/ are widespread in the dialects, but by no means universal. Bavarian, Swabian, East Franconian, Rhine Hessian, the eastern part of Thuringian, Upper Saxon, Silesian, High Prussian and Middle Franconian show diphthongal reflexes like NHG, 48 but High and Low Alemannic, Ripuarian, West Thuringian and Upper Hessian show only diphthongal reflexes finally or in hiatus. 49

The graphic expression of the diphthongs reflecting NHG /i/, /iu/ and /u/ is found first of all in Carinthian documents of the twelfth century in place names like Etwiggi, Reicchersbergensi. 50 The diphthongal spellings seem to have started in the southeast corner of the German speaking area and spread northwest and northeast. According to the documents, the diphthongal spellings reached all Bavaria in the thirteenth century, East Franconia, Bohemia and Silesia in the fourteenth century, Swabia, Upper Saxony and Thuringia in the fifteenth century, and Lower Hesse and Middle Franconia in the sixteenth century. 51 It used to be thought that this was how the diphthongs spread and that the use of di-graphs mirrors the development of diphthongs in the

48) DSA maps: 6 beIB(en), 74 itg, 24 Haus(e), 2 euch.
50) Lessiak 1908, 252.
51) Wagner 1927, 36f.
areas concerned, but this is not strictly true. The diphthongs only found written expression after they had firmly established themselves in the dialects. High Prussian, colonized after 1300 and the speech island of Siebenbürgen, colonized about 1200, show diphthongs, but they were colonized from CG dialect areas which, accordingly must have had diphthongs of some kind at least by the fourteenth century, if not by the thirteenth century.\(^{52}\)

In the standard language this graphic merger has become a complete merger in pronunciation and again this may be the result of spelling pronunciation by LG or other speakers, who always pronounced the same diagraph in the same way whenever they came across it. Although diagraphs were introduced for the reflexes of MHG /\i/, iu, \=u/; they were not written with the same signs as MHG /ei, \=u, ou/. In Bavarian and Lower Alemannic, MHG /\i/, iu, \=u/ were written ei, eu, ou, but MHG /ei/ was written ai.\(^{53}\)

During the sixteenth century in some Low Alemannic and Rhine Franconian sources the reflexes of MHG /\i/ and /ei/ were kept apart by writing them ei and ey respectively. In Bavarian, on the other hand, ey was merely a variant of ei, which was used in hiatus position and word finally.\(^{54}\)

This distinction in writing between MHG /\i/ and MHG /ei/ is still maintained to a some extent in colloquial Bavarian speech. MHG /\i/ is represented by /ai/ [ei] MHG weiz, B. [weis] and MHG /ei/ by [oa] MHG weiz B. [weis].\(^{55}\)

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53) V. Moser 1929, para. 77. The sign au for MHG /\=i/ was used in late MHG but was ousted by ou.

54) V. Moser ibid., para. 9.

55) Keller 1966, 96f.
Chancery language at the end of the fifteenth century did not distinguish between the reflexes of MHG /i/ and /ei/ even though the modern EGG dialects have a diphthong as the reflex of MHG /i/ but a monophthong [e:] as the reflex of MHG /ei/.

Since the NHG merger of the reflexes of MHG /i/ and /ei/ does not reflect any dialectal development, its origin must be sought elsewhere. Its most likely source is in the EGG written language, where the reflexes of MHG /i/ and /ei/ were both written with the same signs. When NHG was introduced into LG areas as a written language, the speakers would always pronounce the same sign in the same way, turning an orthographic merger into a phonemic merger.

The UG sign ai was occasionally used in CG sources but it was never accepted completely. It came to be used in some cases to distinguish homonyms: Saite, Seite, Waise, Weise. Gottsched recognized that ai should only be used for this purpose since normally it signifies an UG pronunciation. Gottsched also tried to rationalize the use of ei and ey to distinguish homonyms: "meine mea, ich neyne arbitrorn," but this usage was never accepted. The grammarians seem implicitly to regard the use of ey, ey, ai as reflecting different pronunciations and to be aware that they represent different sounds according to a different part of the country. Kolroß also recognizes the signs

57) Gottsched 47.
58) Gottsched 78.
59) Ickelsamer, in: Müller 1882, 142.
ny and ey are used in different areas. His own pronunciation uses the long _ for ey and from his own observation, it is still a monophthong.60 The UG grammarian Fulda tried to prescribe the use of ei for MHG /I/ and ai for MHG /ei/, but to no avail.61 Adelung was against the use of ai, which he called 'ein alemanischer Doppellaut', but he allowed it in Kaiser and some foreign words.62 He does not use _ as the modern standard does to distinguish homonyms, for instance MHG Leib and Laib are both listed under the one heading Leib in his dictionary.63 In his description of the pronunciation of ei as "ein Doppellaut, welcher so ausgeprochen werden muß, daß man in dessen ersten Hälfte ein deutliches scharfes e hört," i.e. as [ei],64 he is relying on the spelling, rather than on what he has heard.

The exceptions to the merger of MHG /I, u/, and MHG /ei, ou, ou/ are few and are due to various reasons. MHG du and nu contained MHG /u/ and yet they were not diphthongized, probably because they had unstressed variants with a short vowel, which would not be subject to diphthongization.65 This is probably why MHG û has an undiphthongized reflex in many dialects.66

60) Müller ibid., 69f.
61) Cited by Paul 1916, II, para. 86.
62) Adelung I, 166.
63) Adelung III, 139.
64) Adelung I, 1523.
65) Paul/Moser/Schröbler 1969, para. 10.
66) DSA map 128.
which reflect an unstressed variant with a short vowel in NHG. The standard has selected the stressed variant with the long vowel which has been diphthongized. NHG *Friedhof* represents MHG *vrithof*, 'eingefriedeter Raum um eine Kirche'. The morpheme *vrit* became identified with *Friede* 'peace' by popular etymology, and thus escaped diphthongization. The NHG suffix -ie normally undergoes diphthongization apart from the examples of: MHG *Phantasie, Melodie*, which are loan words and were re-introduced with [iː] alongside the older forms with the diphthong, *Melodei, Phantasei*, these two now being archaic. In the case of NHG *Partei* 'political party' and *Partie* 'game', the re-introduction of the latter with [iː], and not a diphthong, led to a semantic differentiation of two NHG words which were etymologically one word.

The history of NHG /iu/ is different from the other close vowels. It shows a variety of reflexes in the modern dialects. In Low Alemannic, Bavarian and parts of CG, notably Silesia, Thuringia and the western area of Upper Saxony up to the Mulde, NHG /iu/ became derounded and merged with NHG /iː/ and it shows [ai] as its reflex, EOG [glaːʃ], NHG *gelich*, EOG [aiːʃ], NHG *iuch*. The rest of EOG shows [oi] as the reflex of NHG /iu/, as in NHG. In these EOG dialects [oi] is the only diphthong with a rounded first element, and its presence is due to East Franconian settlers, and its presence is due to East Franconian settlers.

67) Kluge/Mitzka 298; Paul 1916, II, para. 62.
68) Paul ibid., para. 88.
69) Kluge/Mitzka 532.
70) DSA map 21 euch.
who brought with them an already diphthongized reflex of MHG /iu/, which differed from the Thuringian and West Upper Saxon reflex in two features, rounded versus unrounded, and diphthong versus monophthong. Although the ECG dialects did have diphthongs at a fairly early date, probably in the fourteenth century, East Thuringia did not have diphthongs until much later.71 From the compromise 'koloniale Ausgleichsprache', which arose in the ECG basin from the many dialects of the settlers, this diphthong with the rounded first element [ai] found its way into standard NHG.

In WCG the reflex of MHG /iu/ is [au] in words where MHG /w/ immediately followed, NHG: briuven, brauen. The place name Naumburg goes back to MHG zur niuven burc, and this is also the case in a small list of relic words, Hessian faur, naut, haut (NHG Feuer, nichts, heute).72 The distinction goes back to pre-OHG. Normally OHG íu, which was a diphthong, merged in MHG with the umlaut of OHG í:OHG liuti, hüsir became in MHG liute, hiuser. In WCG and UG this merger occurred only when OHG íu was followed by a i or an ë in the next syllable. A small number of words where OHG íu was followed by u and these merged with MHG /ü/, and were consequently diphthongized to [au]. Thus these relic forms, which have been mentioned above, arose.73 On the maps of the DSA these forms cover small scattered areas but at one time they probably covered a larger area. In WCG,

71) Von Polenz 1954, 152f.
72) Martin 1959, 42f.
OGH *iu* followed by *u* and OGH *iu* immediately followed by *u*, both merged with MHG */u/.

In standard MHG there are words showing both developments, *kauen*, showing the merger of OGH *iu* with *uw* and its diphthongization to [au], and *Wiederkauer* showing the merger of OGH *iu* with the umlaut of OGH *i*.

In UG, in Swabian and the adjoining parts of Bavaria there is no merger of OGH *iuw* and *uw*, but there is a different reflex for OGH *iu* when it is followed by a *u*. In this case the result is a rising diphthong [ui], *fuir*, *huit*.

The only serious linguistic reason for the diphthongization that has been put forward is that the diphthongization was caused by the apocope of unstressed MHG *e* (see 6.5.). When the *e* in MHG *Ise* and *Hause* was lost, the long vowel became overlong and diphthongized.

The difficulties with this view are that the CG dialects show diphthongs but not apocope, the diphthongs may be borrowed from UG), and that Alemannic shows apocope but not diphthongization.

There are parallel diphthongizations in other Gmc. languages, in Dutch and English: Dutch *mijn huis* *[mijn hũys]*, English *my house*. and, as in German, the diphthongs, though characteristic of the standard languages, are not to be found in all dialects.

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74) Weise 1907, 206.

75) Lexer 1961, 108, also has a variant *kouwen*. Cf. also *brauern*, the surname *Brüuer* and Hofbrauhaus.

76) Schirmunski 1962, 227f.

77) Wrede 1895.
The Netherlands, the western strip of Flanders in Belgium, the provinces east of Arnhem, including all of Friesland, show monophthongs. In Britain, the northern dialects show monophthongs for Middle English /i/; the boundary being the Humber. ME /i/ would appear to be diphthongized in all areas. In the Netherlands the process seems to have started in the fourteenth century, and in Britain in the latter half of the fifteenth century. These diphthongizations appear to be parallel and autonomous.

6.3.4. The monophthongization of MHG /ie/, /üe/ and /uo/
and their merger with MHG /i, ü, u/ before voiced consonants.

The MHG diphthongs /ie/ [ie], /üe/ [ye], /uo/ [uo] are represented in NMG by the long close vowels [i:], [ü:], [u:], which are spelt ie, lieben; ü and ü, trübe, kühe; u and uh, Buch, Kuh.

Only in the case of MHG /ie/ has the spelling remained the same. The resultant monophthongs, which phonetically are the result of the weakening and disappearing of the second element and the lengthening of the first element, have merged with the MHG short vowels /i, ü, u/ when they were lengthened before single voiced consonants, MHG lieben: sieben; trübe: über; buobe: stube;

NMG lieben, sieben; trübe, über; Bube, Stube.

The monophthongization first appears in documents in the twelfth

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79) Kolb 1966, maps 224f.
80) Loey 1959, para. 77.
81) Wright 1924, para. 73.
82) For a discussion of the reconstructed value of MHG /ie, üe, uo/ (see 4.7.).
It is limited to CG dialects - Alemannic and Bavarian still retain diphthongs. In Bavarian and ECG, MHG /ie/ and /ue/ have merged and show only one reflex, [iː] in Bavarian, and [iː] in ECG. In ECG, Upper Hesse, the southern half of Mosel Franconian, Palatine, South Rhine Franconian and a large part of East Franconian the reflexes of MHG /ie/, /ue/ and /uo/ are [iː] and [uː], whereas in Lower Hessian, North Mosell Franconian and Ripuarian the reflexes are [eː] and [oː]. The monophthongization took place before the diphthongization reached CG, but the new monophthongs from MHG /ie, ue, uo/ did not merge with MHG /I, iu, û/, which were probably closed, whereas the new monophthongs were more open. Since no dialect has two series of high vowels which only differ in that one is close and the other open, we can merely speculate as to how they were articulated.

In the fourteenth and fifteenth century there was fluctuation between the signs i and ie for MHG /ie/ in CG sources, but the sign u for MHG /uo/ was used from the fourteenth century. Sometimes ue is found for MHG /uo/ where e is a length sign. It could also be ascribed to an UG scribe. Frangk, as a CG, describes the pronunciation of ie as a long monophthong [iː]: "Denn das e hat jnn solchen vorgeenden wortlin nicht sein krafft/

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83) V. Moser 1929, para. 81, Anm. 10.
84) SDS I, MHG ie 140-1, MHG uo 142, MHG u 144-5; Kranzmayer map 15, paras. 17-19.
86) Moulton 1961, 32.
87) Kettmann 1967, 113ff.
sondern erlengert nur das i/u, whereas it is not clear from Kolroß whether he regards the sign u as a diphthong or not. Helber, who came from Freiburg, gives an explicit description of the diphthongal pronunciation of the reflexes of MHG /ie, üe, uo/. Some UG sources continued to use the sign üe in the sixteenth and seventeenth century, but during the seventeenth the use of u had become prevalent everywhere. Schottel tried to introduce i alone for NHG /i:/, but failed. The sign ie was, and still is, an example of how the spelling could, and can, mask pronunciation. The UG speaker can pronounce it as a diphthong, and the CG and North German as a monophthong, but they use the same sign in writing, whatever their pronunciation. The history of NHG /üe/ is slightly different. Only rarely was any real attempt made to distinguish between üe and i and the later sign has been adopted as the main sign for NHG /y:/.

It seems plausible that there is a causal connection between the monophthongization of MHG /ie, üe, uo/ and the diphthongization of MHG /i, u, ü/, but these two changes took place at different times and in different places. The monophthongization started in CG in the twelfth century, whereas the diphthongization started in the thirteenth century in Carinthia. Only CG has both the

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88) Hülle 1882, 105.
89) Hülle ibid., 67.
90) Cited by V. Moser 1929, para. 81, Anm. 8.
91) V. Moser ibid., para. 81, 1.
92) Cited by Paul 1916, II, para. 61, Anm.
93) Moser ibid.
diphthongization and the monophthongization. Why was the UG diphthongization accepted by CG? The answer could lie in the fact that the high close vowels in CG were becoming overloaded since in ECG MHG /e, ae, o/ were raised to [i:] [y:], [u:] merging with the new monophthongs from MHG /ie, ue, uo/. In addition in ECG short MHG /i, u/ also merged with the new monophthongs in open syllables when they were lengthened, and, of course, with the reflexes of MHG /e, ae, o/, which had been raised. The acceptance of the diphthongs lightened the incidence of the high vowels. In this way one could perhaps say that the monophthongization, together with the raising of MHG /e, ae, o/ in ECG, and the lengthening of short MHG /i, u, o/ were part of a push-chain which resulted in MHG /i, iu, u/ being diphthongized.
6.4. DEROUNDING AND ROUNDED

The NHG standard language has a series of front rounded as well as front unrounded vowels phonemes, which occur both short and long:

\[
\begin{align*}
/i/ & : /y/ \quad \text{bitten : Hütte} \\
/e/ & : /\phi/ \quad \text{Pfeffer : Löffel} \\
/i:/ & : /y:/ \quad \text{Biene : Bühne} \\
/e:/ & : /\phi:/ \quad \text{sehnen : Söhne}
\end{align*}
\]

These oppositions have a large functional yield and are of great importance in the vowel system. The standard also has a phonemic distinction between the rounded diphthong /oy/ (or /oi/ see 6.3.3.) and /ai/ : Leuchter : leichter. These phonemic differences are reflected in spelling and prescribed by Siebs.\(^1\)

However in most CG and UG dialects, excluding High Alemannic,\(^2\) and also in the colloquial speech of the same areas, these two series of front unrounded and rounded vowels have become de-rounded and merged in the unrounded vowels: Altenburgisch [rge], [błeđe], [sände], [iɔr], [fraend], NHG Mische, blMüde, Sünde, über, Freund.\(^3\) In those dialects where NHG /ie, üe, wo/ are still retained as diphthongs NHG /io/ and /ue/ have merged: Bavarian miad, NHG müde, NHG müde.\(^4\) Although many CG and UG dialects have merged these two series of front vowels, they have developed other phonemes to compensate for this loss, so that they do not have appreciably fewer vowels than standard NHG. Counting the diphthongs as unit phonemes, Moulton sets up eighteen vowel

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1) Siebs 1958, 51, 55, 58f. [ie, y, \phi] are used for IPA [i, y, \phi].
3) Von Polenz 1934, paras. 11a, 21a, 14a, 23a.
phonemes for NHG. 5 For Upper Hessian a pupil of Moulton's sets up a phoneme inventory of twenty stressed vowels, excluding ingliding diphthongs and nasal vowels. 6 Derounding does not seem to have led to small vowel systems in the dialects in which it has taken place. The EOG described by Von Polenz has fifteen vowel phonemes including diphthongs. 7 Derounding also occurred quite early in the history of English, cf. English bridge, NHG Brücke, hear, NHG hören, 8 and is a natural development for front rounded vowels. NHG has not been radically affected by the derounding at all. Only the incidence of several NHG words with front rounded vowels has changed, and in NHG they have unrounded front vowels. The main examples are:

<table>
<thead>
<tr>
<th>MHG</th>
<th>NHG</th>
<th>MHG</th>
<th>NHG</th>
</tr>
</thead>
<tbody>
<tr>
<td>findling</td>
<td>Findling</td>
<td>slüngel</td>
<td>Schlingel</td>
</tr>
<tr>
<td>bülez</td>
<td>Pilz</td>
<td>gümpel</td>
<td>Gimpel</td>
</tr>
<tr>
<td>sprütze</td>
<td>Spritze</td>
<td>kürre</td>
<td>Kirre</td>
</tr>
<tr>
<td>late MHG</td>
<td>gupfel</td>
<td>nürz</td>
<td>Nerz</td>
</tr>
<tr>
<td>Küssten</td>
<td>Kissen</td>
<td>zülle</td>
<td>Zille</td>
</tr>
<tr>
<td>late MUG</td>
<td>slōufe</td>
<td>Schleife</td>
<td>blümez</td>
</tr>
</tbody>
</table>

Since the derounding of MHG /i, ɔ, iu/ resulted in a merger in the case of these words, it was expressed from its inception by

5) Moulton 1962, 61.
7) Von Polenz 41f. The description is not itself couched in terms of phonemes.
8) Luick 1914ff., I, i, para. 182ff.
the use of \( i \) and \( e \) for \( u \) and \( o \) and of \( ei \) for \( iu \) and \( ou \). There is documentary evidence for derounding in all High German dialects, except High Alemannic, East Franconian and Ripuarian. It is recorded as early as the middle of the twelfth century and spread widely by the fourteenth and fifteenth century.\(^9\) By the time of Thomas Murner it had already taken place in Low Alemannic.\(^10\) In Bavarian the derounding had taken place by the thirteenth century.\(^11\) Despite all this evidence, the grammarians clearly recognize that the signs \( u \) and \( o \) represent different sounds from \( i \) and \( e \). Ickelsamer maintains that they should have their own separate signs: "Das/ \( u \)/ ist auch vaste der mittel laut zwischen \( o \)/ und \( e \)/ als in disen wortern \( o1/ \) gotlich \( u \).
Das \( U \)/ lautet mit zusammen gezognern und engeren lebtzen/ dan das schlecht Lateinisch/ \( u \)/ darumb auch diser laut bey den Hebreern haißt Kibutz von zusammen legen der lebtzen als es lautet in disen wörtern/ \( fu1ff/ \) gotlich hülpsch".\(^12\) Frangk also recognizes that \( U, \, \, \, U \) "auff eine sondere art jr aussprache haben".\(^13\) However the Bavarian Fuchsperger seems to recognize derounding when he comments: "aber \( A \)/ unnd \( e \)/ bedetun nit mer dann ein schlecht \( e \)/ als in den worten. ... Hoerfisch ... Foeder für Herfisch ... Feder".\(^14\)

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9) V. Moser 1929, para. 65.
10) Philipp 1968, 188f.
11) Kranzmayer 1956, para. 6a.
12) Müller 1882, 126f.
13) Müller ibid., 96.
14) Müller ibid., 175.
EGG sources did not normally confuse the signs for front rounded and unrounded vowels at the beginning of their written records. However it has been seen that in the second half of the sixteenth century there are examples of i, and e used for ü and o respectively. This is more prevalent among scribes and officials who were not officially 'Stadtschreiber'. Many of these unrounded forms occur in workers' bills. Gottsched criticizes the pronunciation of ü as e: "ü, als: hören, König, halb o, nicht wie hören, König, auch nicht wie ein schlecht e. Mogen, nicht wie mägen, Vogel, mit einem spitzrunden Munde, nicht wie vegel, oder Vögel", and of ü as i: "ui, oder ü, ... hat den mittleren Ton zwischen dem u und i, wie das französische u, oder das wahre griechische υ, E. blühen, nicht blihen, bliehen".

In Early NHG and NHG rhyme technique it is quite permissible to rhyme front rounded vowels with front unrounded vowels: Flügel, Siegel; keint, ehmut. This has been an accepted technique since the seventeenth century, and the reason why it is possible is because the Thuringian, Upper Saxon and Silesian poets made no distinction between these vowels in their speech, and transferred this to their rhymes. The Silesians, however, did not rhyme the reflexes of NHG /iu, òu/ and /ei/, since they distinguished them in speech. The North German poets adopted a tradition in their rhymes, although it was against their speech habits, and

thus it has become accepted in NHG (see 4.6.).

Although the derounding was prevalent in many parts of Germany, the difference in spelling between \u00f6, \u00e4 and ij has always been maintained, particularly in ECÖ, upon which NHG is very largely based. The derounding has been masked by the spelling. LG speakers, who had both front rounded and unrounded vowels, pronounced the symbols \u00f6 and \u00e4 as front rounded vowels. The de-rounding is only reflected in the selection of several words with i and e by NHG. The form Hilfe which could be found at the turn of the century still had a variant Hilfe. Both these forms are old, Luther has Hilfe, and this is a case of selection from two old doublets rather than a rounded and unrounded variant of one word.

There is also evidence for exactly the opposite of derounding, i.e. rounding, words in MHG containing i, e being changed to NHG \u00f6, \u00e4. There are more examples of rounding than of derounding in NHG. Again this change has neither affected the number of phonemes nor their distribution in the word but only their incidence. Normally both derounding and rounding are treated as irregular sound changes. The chief examples of rounding are:

<table>
<thead>
<tr>
<th>MHG</th>
<th>NHG</th>
<th>MHG</th>
<th>NHG</th>
</tr>
</thead>
<tbody>
<tr>
<td>swern</td>
<td>schwören</td>
<td>welben</td>
<td>Gewölbe</td>
</tr>
<tr>
<td>scheffen</td>
<td>Schöffen 'juror'</td>
<td>leffel</td>
<td>LHöffel</td>
</tr>
<tr>
<td>vletze</td>
<td>Flöz '(geol.) stratum'</td>
<td>derren</td>
<td>dörren</td>
</tr>
</tbody>
</table>

17) Neumann 1920, 113f.
18) Kluge/Mitzka 307.
The rounding can be seen in Alemannic as early as the thirteenth century. It tends to occur before or after certain consonants, notably, w, sch, l, labials, and r. All the examples selected by NHG, except stohnen, fit into this category. In Swabian and Alemannic written sources of the fourteenth and fifteenth centuries there were many more rounded forms: wolch, schwoster, Opfel. Many speakers today use a rounded vowel in elf, NHG elf, probably by analogy with zwölf. Until the middle of the sixteenth century there is great deal of fluctuation in both the rounded and unrounded signs, only High Alemannic and, to a lesser extent, EGG show consistency in their use. In EGG the signs ü and ë, when they are used for ë and ï, are only an importation of written signs and do not reflect the pronunciation of the dialect speakers of that area. Their acceptance in EGG sources was supported by their use as hypercorrect spellings for derounded vowels, which were, and still are, the norm in EGG dialects. The forms with ë are foreign to EGG texts and even Luther does not have them. Sometimes ë is used indiscriminately for ë.

19) V. Moser 1929, para. 66.
20) V. Moser ibid., para. 65.
which shows that no difference was made between front rounded and unrounded vowels. Probably most of the cases with  in NHG are probably due to a hypercorrect use of  and . Indeed in the seventeenth century there are forms with both  and  in all cases of the list above except zwolf, Schöffe, schöpfen, and Löwe. In the case of NHG /u/ for MHG /i/, only Würde has rounded forms in the dialects to support it — all the other examples are due to the hypercorrect use of  for i.22

Although derounding had taken place in Bavarian and Low Alemannic, these dialects later developed front rounded vowels, which they still retain. These new vowel phonemes are the result of a split of front unrounded vowels, which developed rounded allophones before certain consonants, in Bavarian before /l/, which is vocalized, 23 and in Low Alemannic before NHG /g/ which has become [ŋ].24 In sources from these dialect areas the rounding did reflect a phonological process. In Bavarian there is a phonetic rounding before more consonants than just /l/: "Es ziehen im Bair. außer w auch m, pf, pp, ach und gelegentlich st, sp, vereinzelt auch andere Mitlaute, Rundung nach sich".25 Even in

22) Von Bahder 1890, 180f.

23) Keller 1961, 207. The same data is interpreted according to a generative approach by Hansell 1973, 198ff.

24) Keller ibid., 123, Philipp 1965, 262f., 1968, 198ff. The high vowel [y:] is the result of the unconditioned palatalization of MHG /u/ under the influence of French, 1968, 42ff.

the standard, many speakers have a merger of MHG /i, y/ in /y/ before /r/.

26) Siebs 1958, 45: "Besonders hätte man sich vor der Aussprache des i mit Lippenrundung, wie es namentlich vor r in manchen Mundarten üblich ist, so daß Hirsch, Kirche, Wirtschaft wie Hirsch, Kirche, Wirtschaft klingen".
6.5. THE LOSS OF UNSTRESSED NHG e

6.5.1. Introductory

The most frequent unstressed vowel in NHG is [ə] spelt e. Other vowels do occur, but mostly in foreign words, Rheuma, Pony, Auto, Zulu. Other vowels also occur in derivational suffixes, -lich, -ung. The central half-open [ə] never occurs in stressed position, and, in fact, its phonemic status is controversial. Some linguists regard it as an allophone of stressed /e/, only occurring in unstressed position, whereas others point to such contrasts as: Omen : Namen, Totem : Atem, to show that /e/ and /ə/ do contrast even in unstressed position. Generative phonologists derive [ə] from underlying /e/ by a vowel reduction rule. For them it only exists in surface forms. The contrast /e/ : /ə/, which anyway does not have a large functional yield, only exists in the standard as prescribed by Siebs. In the modified standard the /e/ in words such Totem, Omen and in the prefixes ver-, zer- is replaced by [ə]. For the majority of German speakers, [ə] is not a separate phoneme but is rather an allophone of /e/, occurring in unstressed position. We will adopt this view here. This was certainly the status of [ə] in MHG, but there was an added complication in that both /e/ and /ə/

1) See the account of the secondary literature in Werner 1972, 35-39. Also Jones 1962, Philipp 1970, 47, only recognizes [ə] as the only unstressed vowel.


4) Duden Grammatik 1966, 53.
existed. Was [e] an allophone of /e/ or /ˈu/? Since these two sounds merged in NHG, this question is not important for the historical development, but it is one which would have to be answered in a synchronic description of NHG. We will leave this question open. In derivational suffixes in NHG, both i and e occur, e.g. -ec, -ic, -esch, -isch. This has been interpreted to mean that the vowel in suffixes such as NHG -ig, -isch, was [e] in MHG. In Early NHG and, to a certain extent, in MHG there is even a fluctuation between i and e in inflexional endings, particularly in the gen. sing, e.g. coldes, coldis. This orthographic fluctuation, which is a sign that there was no difference in pronunciation between i and e in unstressed syllables, has been rationalized in NHG: i occurs in derivational suffixes, except -chen, and e appears in inflexional suffixes. This distribution of i and e had largely been reached in EHG by the second half of the sixteenth century. In MHG the long vowel /iu/ also occurred in unstressed position, blindiu, but in NHG it has been replaced by [e] in every case. This is really a morphological change, the ending having spread and led to the loss of -iu. Phonemically it means a change in the

5) Paul/Moser/Schröbler 1969, para. 27, 3; Weinhold 1883, paras. 275, 278.
6) Fleischer 1966, 78f.
7) Other exceptions are -er, -el. Since unstressed [i] in MHG appears before palatal or velar consonants generative phonologists derive it from underlying /e/ by a raising rule, Vennemann 1968 b, 372; Wurzel 1970, 182.
distribution of NHG /iu/, which now no longer occurs in unstressed position. In CG only -e occurred instead of -iu in the declension of adjectives.  

Changes in the allophone [e] have affected only its distribution. It now no longer occurs in the same places as it did in NHG. The number of vowel phonemes has not affected only their distribution and incidence. The loss of [e] has itself caused phonemic changes, e.g. the change of the NHG affricate /ts/ to the cluster /t/ + /s/ (see 5.1.1.). NHG [e] has been lost in three positions:

1. When it is in absolute word final position and is not followed by any consonant, e.g. NHG hän, NHG Hahn.
2. When the vowel is followed by one or more consonants, e.g. NHG hilft, NHG hilft.
3. When in the prefix ge- or be-, NHG gelücke, NHG Glück.

The first type of vowel loss is called apocope, and the other two syncope. The apocope of unstressed final -e in NHG is said by Paul to be very irregular, but its regularity or irregularity depends not only on phonetic but also on grammatical factors. Paul, however, does set up a 'sound law': "e ist in der schwächstbetonten Silben des drei- oder mehrsilbigen

10) Bloomfield 1935, 382.
12) Wilmanns 1911, I, para. 20 (see 2.4.)
Sprechaktes geschwunden”. This accounts for the loss of MHG -e after derivational suffixes in nouns, MHG königinne, verdannisse, zoubare, bezeichnunge, MHG königin, Verdannis, Zauberer, Bezeichnung. However, the capriciousness of apocope is not as great as Paul would have us believe, but depends on the grammatical categories of the words concerned. Kiparsky has set up a hierarchy for the relationship between sound change and grammatical categories. Case endings tend to be more subject to loss than number endings. In languages which have compulsory personal pronouns, verb endings tend to be weak and subject to loss, whereas in languages which do not have compulsory personal pronouns, verbal endings tend to be strong. Tense and gender endings also tend to be strong. Lindgren's study of apocope in German is cited by Kiparsky as an example of how the loss of e varies from category to category. The attempt will be made here to review the effect of apocope in the different word classes and their grammatical categories.

6.5.2. Apocope among adjectives

Many adjective/adverbs in MHG showed a form with a final -e, lange, treue, milte, spete, whereas many had no final -e, guot, lange, and some had two forms, riche, rich. A final -e, was added to adjectives ending in a consonant in order to form adverbs, adjectives lange, hoch, adverbs lange, höhe. Those adjectives which already ended in -e and had a mutated vowel, e.g. e, o, u,

13) Paul ibid., para. 105.
14) Kiparsky 1972, 206.
15) Lindgren 1953.
in HHG, the adverb form of an unmutated vowel in their adjective form, trage, adv., trage adj. If no vowel difference existed, then the adjective and adverb had the same form in predicative position, e.g. kleine. In NHG there is no overt difference between adjectives and adverbs. The NHG adjective forms with umlaut have become used as both adjectives and adverbs, e.g. Er ist trage, Er arbeitet trage. Only in the cases of hart and sanft have the unmutated adverb forms become the sole form of the adjective/adverbs. Also in NHG there is no distinction between adjectives ending in -e and those not ending in -e. One of the factors involved in merging the two word classes of adjective and adverb is the apocope of final -e which has been lost in leer, spät, NHG lare, spate, whereas it has been retained in hülse, müde, NHG hülse, müde. The loss of -e is phonetically conditioned by the preceding consonant. The apocope of -e in adjectives has taken place after voiceless obstruents, nasals and liquids: NHG (the adjectival form of also existed in MHHG) etc., spate, kiusche, dicke, küne, düfe, dürre, NHG spät, keusch, dick, kühn, kühl, dürf. Paul lists the following as exceptions which have lost the final -e in NHG, herb, schrag, gering, freund, linde, mild, wild, geschwind, clend, gescheit, (NHG geschide). However, the words with nd could also have had variants with nt in NHG.

16) Paul/Moser/Schröbler 1969, para. 141. Adverbs were also formed by adding the suffix -lich(e) particularly to adjectives which ended in -ec or -isch.

17) Paul 1916, III, para. 120.
18) Paul ibid.
19) Paul/Moser/Schröbler 1969, para. 104. In NHG nt became nd medially but there were probably also variants with both t and d.
and -e could have been lost regularly after the voiceless sound.

Of the others, gescheit also had the form gescheut in MHG which was assumed to have been formed from scheuen. Presumably it was considered a past participle, and thus would end in -t and not -e. The adjective schranz is not recorded until the sixteenth century. Both it and herb have variants with -e in NHG. This leaves merely the forms with a cluster containing a NHG nasal as exceptions and, as has been said, these may have had variants with medial nt, after which the -e could have been lost regularly. There is one MHG consonant cluster which has forms with apocope and without, NHG neg. The adjectives seiner, enke, strenge have lost their final -e, NHG seinre, enge, strenge, but NHG bange retains its final -e. NHG lang and lange are a special case since they are distinguished, lange being only used for time, e.g. es ist lange her, as against der Weg war lang. Even in NHG some adjectives have variants with and without final -e, ferne, stille, strenge. Duden Grammatik describes bald, kalte, stille as archaic and poetic and helle, dicke, feste, sachte, süße, alleine as 'umgangssprachlich'. Duden Hauptschwierigkeiten gives more details and states that in the case of adjectives such as blöde, irre, trübe, feige, milde the basic forms end in final -e, and that the variants without final -e, blod, irr, trüb, feig, mild

20) Kluge/Kitzka 231.
21) DE'621.
22) Trüburners Dt. Wb. 5, 410.
are rarer "und dann oft ein leichte stilistische Nuance enthält". On the other hand, the adjectives dünn and dick have the variants dicke, dünn, and the comment is made: "Die Form mit 'e' wird oft derber oder emotional gefärbt angesehen".

Other variants mentioned are, allein, alleine, where alleine is considered colloquial, whereas there is no such difference between gerne and gerne, although gerne is described as "vertrautfamiliar". These variants with final -e are more frequent in the north, since in the south the apocope has been carried through more radically. In the written language the apocope of final -e among adjectives is a regular conditioned change in that -e only remains after voiced obstruents. The recognition that final -e should be retained after voiced consonants goes back at least as far as Adelung.

In attributive position, in either the strong pl. nom./acc. ending, e.g. einige grüne Flaschen, or the fem. sing. eine gute Stelle, the final -e has not been lost, even in the South German dialects. This is an example of a grammatical category hindering a sound change. Where final -e has the function either of showing the strong pl. adjective ending or the strong fem. sing. ending it has been retained.

26) Adelung 1, 1490.
27) DSA 50 (schöne) e; (alt)e shows the -e being lost in a more widespread area.
6. 5. 3. **Apocone in verbs**

In standard NHG, the apocope of final -e has not affected the verb system to any great extent. The final -e of the past tense of weak verbs has been retained, NHG vrägete, WHG frachte. In UG dialects, however, the final -e in such forms has been lost and the past tense has been replaced entirely by the perfect.\(^{28}\) The standard has also retained the final -e in the subjunctive, wäre, käme, as also have the UG dialects. But Bavarian has lost this -e and has developed new periphrastic forms, *es tad mi gefrai(n)* (NHG *es wurde mich freuen*), but the majority of strong verbs form their subjunctive in the same way as the weak verbs.\(^{29}\) This also seems to be the trend in Rhine Hessian.\(^{30}\) All the UG dialects agree, however, in having lost the -e of the first person singular present of both strong and weak verbs. This agrees with Kiparsky’s prediction that when personal pronouns are obligatory, as they are in NHG and German dialects, then the personal -e endings of the verb are subject to loss.\(^{31}\) Even although the -e is retained in written NHG *ich habe, ich sage*, it is often elided in speech, especially in South Germany.\(^{32}\)

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28) DSA 78-80 kam, shows that the imperfect has been replaced by the perfect in UG.
30) Keller ibid., 186.
31) Kiparsky 1972, 206.
In standard NHG the second person sing. imperative form of weak verbs, and those strong verbs which have any stem vowel other than e, end in -e: warte, fahre, laufe, stoBe. In the strong verbs, whose stem vowel is e, and which change this to i in the imperative second person sing., no -e is present, e.g. gib, nimm. The imperative forms komm, laB are the only exceptions to this rule. On the other hand siehe has become used in religious language because of its occurrence in the Luther Bible. This state of affairs reflects NHG, where the second person imperative forms of weak verbs end in -e, whereas all the strong verbs had no ending. Even in NHG, however, some strong verbs added an -e in the imperative and this has spread in NHG to those strong verbs which do not change their stem vowel to form the imperative. It would seem that this NHG stage had been reached by Gottsched's time, although he himself rejects it and would have preferred to dispense with forms such as gehe, stehe, falle, schreibe, and to restrict -e to weak verbs only. NHG does not follow Gottsched, but has selected the form with -e for those verbs, whether weak or strong, which do not show the imperative by changing their stem vowel. In this case, as well, the final -e has been retained because it has an important function, showing the mood, the imperative. Even here, however, in colloquial German the -e is often elided.

33) Duden Grammatik 1966, 1023.
35) Gottsched 334.
6.5.4. *Apostrophe among particles*

The MEG prepositions and conjunctions which have remained in NHG show a regular loss of final MEG -e. In MEG ab, an, vor, mit, ob, um and und all had variants with -e, abe, ane, vore, mite, obe, umbe, unde, but in NHG only the forms without -e remain. The forms which are historically older are the forms with -e which reflect OHG -a or -i, OHG.

These words were often unstressed, and the variants without -e probably first occurred in unstressed position and furthermore before words beginning with a vowel. The variants without -e have been generalized in NHG. There was no reason to retain the -e since it did not signal any grammatical function. The preposition ohne, MEG ëne, is the only notable exception to the regular apocope of final -e in particles. In Early NHG the regular form is on. Ohne is the regular East Franconian form. Possibly the wish to differentiate it from 'an' may have been the reason for the retention of the -e as well as the rounding of NHG /a:/ to /o:/ (see 6.3.2.). More probably the retention of the final -e is due to the wish to distinguish it from the prefix un-, which in Early NHG and until the eighteenth century, was spelt ohn-. Most compounds which in NHG have un- had ohn- in Early NHG.

36) Weinhold 1883, para. 333.

37) Elision of final -e before a word beginning with a vowel occurs frequently in NHG, Paul/Koser/Schröbler 1969, para. 24, Anm. 5. General principles for the elision of final -e in poetry were laid down by Opitz 32f.

38) Moser-Stopp 1910, para. 50.
and later. The only one to survive is Ohnmacht, where the meaning 'without' is still plausible for the prefix ohn-. All the other forms with ohn- as prefix have either died out or else have been replaced by forms with un-.

6. 5. 5. Accusative in nouns

In MHG the plural ending -e, with or without accompanying mutation of the stem vowel, has never been lost. As a sign of the plural, the -e is very strong in MHG. In UG dialects, however, this plural -e has been lost, but since in most cases mutation of the stem vowel has spread, or other endings such as -er, -en have been used, marking the function of the plural is never lost. The dat. sing. ending in MHG was expressed by -e, tac, tage, in the masculine and neuter nouns. In MHG the dative -e has become optional and is not often used in colloquial speech. Gottsched cites no loss of dative -e. However he is aware of the loss of -e in other grammatical categories, and it is difficult to imagine that it was not already optionally elided by his time. Adelung, on the other hand, only lists the elision of dat. -e "wenn sie ohne Artikel stehen". In UG dialects the dat. -e is completely lost. On the use of the dat. -e in NHG, Duden Haupschwierigkeiten comments: "Das Dative -e ist stark im Rückgang begriffen. In festen Redewendungen und formelhaften Verbindungen hat es sich noch..."

39) Henzen 1957, para. 58; Dr. Wb. 7, 1202ff.
39a) Kluge/München 52ff.
40) DSA map 46 (Gänse).
42) Adelung 1, 1491.
This includes phrases such as nach Hause, zu Hause, bei Leibe. After diphthongs and vowels in polysyllabic and disyllabic words ending in -en, -em, -el, -er there is never a dat. -e either in speech or writing, e.g. im Rätsel, im Kreuzworträtsel. A dat. -e also does not occur in loan words, e.g. im Evangelium, im Vokalismus, or when a noun is directly governed by a preposition and there is no article, e.g. aus Holz, in Öl. In other cases the occurrence of dat. -e "hängt vom Satzrhythmus, vom rhythmischen Gefühl des Schreibers oder Sprechers ab". No clear distinction is made as to whether the elision of dat. -e is more prevalent in speech or in writing, or whether it is equally prevalent in both. Presumably dat. -e is elided more in colloquial speech than in writing. There are no studies available to enable us to make any detailed comments on this. The presence or absence of dat. -e, or any other -e, could be studied as a linguistic variable and would probably be found to be stylistically stratified and possibly socially stratified as well (see 2.6.).

A final -e also occurs in the nom. sing. of many nouns. It is not a case ending in NHG, but rather part of the stem. This is the area where there is most irregularity in the development from MHG to NHG. In MHG the nom. of the masc. and neuter u and ja stems, the fem. § and §§ stems, together with the weak nouns of all genders, ended in -e. Examples of masc. and neuter u stems are: site, sise.

43) DHS 158.
of masc. and neuter ia stems: hirte, netze.

The masc. and neuter strong nouns all lost their final -e if they stayed strong, Sieg, Netz, except MHG kasse which has retained its -e in NHG, Kasse. A few nouns, like Held, MHG helde, have become weak in NHG, although they have lost their final -e. In some cases the -e has been retained, but the nouns have become fem., e.g. MHG sitte, hirse, NHG die Sittte, die Hirse. Another possible development was for masc. and neuter nouns not to lose the final -e but to add -n and develop new gen. forms, e.g. MHG Rücke, NHG Rücken, Rückens. Some weak masc. and neuter nouns lost their final -e and became strong, MHG hane, NHG Hahn, MHG blitze, NHG Blitz.45 The fem. strong nouns usually retained their final -e, which was regarded not merely as a part of the noun stem, but the sign that they were feminine. When the -e serves the function of showing the category of gender then it is not normally lost. Nevertheless in a few cases it has been lost, MHG : mähte, NHG : Acht, but there were fem. nouns even in NHG which ended in a consonant.46 Final -e is not the exclusive sign of fem. grammatical gender for nouns. After a diphthong the -e has always been lost, MHG vrouwe, NHG Frau, (the medial /w/ was also lost, see 5.3.3.). The MHG weak fem. nouns have also retained their -e, but they are no longer weak in NHG, but mixed, i.e. they inflect like strong fem. nouns, which did not change

45) Paul 1916, III, paras. 31-35.

46) Paul ibid., para. 52.
their form in the sing., but like weak nouns in the pl. e.g.
Zunge, Zungen. 47 Again, since the -e is a sign of fem. grammatic-
al gender, it has been retained in NHG.

There were only four weak neuter nouns in MHG: herze, öre, ouge,
wanze. 48 The last noun has become fem. in NHG, MHG ouge has
become mixed, öre has become mixed and lost its final -e. Only
MHG herze has remained weak and it has lost the -e, although there
still is an archaic variant form NHG Herze. From so few examples
no real 'rule' can be deduced. It is among the numerous masc.
weak MHG nouns that there is considerable irregularity in the
loss of -e in NHG. A few nouns lost the final -e and became
strong, e.g. MHG hane, blitze, NHG Hahn, Blitz, but the majority
has remained weak. The loss or retention of -e is not entirely
random and seems to correlate to a certain extent, but not
exclusively, with the consonant or consonant cluster preceding it.
After MHG /r/ the -e has invariably been lost, NHG Herr still has
the archaic Herre. After a cluster containing /r/ plus a stop
the -e has been retained, NHG Burze, Erbe, Ferze, Gehrte,
Scherge, Schurke. The only exception here is Hirte, but this has
the variant Hirt, which is gaining ground. 49 After MHG /ts/ the
-e is lost in Spatz but retained in Gütze, Schütze. Here we do
not know which is the regular development and which the irregular.
After nasals the -e is usually dropped but Nachkomme, Name, Same

47) Paul ibid., paras. 44-51.
49) DHS 301, Duden Grammatik 1966, para. 201.
are exceptions.\(^{50}\) After a cluster containing a nasal, on the other hand, \(-e\) was usually retained, Halunke, Kunde. NHG Fink, NHG vinke, is declined strong in NHG. Where final \(-e\) is retained in weak nouns it is usually after voiced consonants, e.g. NHG Bube, Knabe. The \(-e\) is mostly used for animate beings among weak nouns, Bube, Affe, but there are exceptions, e.g. Herr, Mensch. Since all adjectival nouns designating persons end in \(-e\), der Bekannte, der Verwandte, der Angeklagte, the occurrence of \(-e\) may have supported the retention of final \(-e\) in nouns such as Bube, Knabe. The only exception to this is Buchstabe. The direction of the change involving the loss of final \(-e\) is clear: all weak nouns ending in \(-e\) which do not designate animate beings have lost their \(-e\). Although the stage where all weak nouns which end in \(-e\) designate animate beings has not yet been reached, the direction of the change can be clearly seen. This is in fact a change in progress. There have indeed been other attempts to systematize the use of final \(-e\) among weak masc. nouns. Gottsched set up the principle: "All Wörter, die sich auf ein kurzes e enden sind weibliches Geschlechts", thus renouncing the use of \(-e\) for weak masc. nouns.\(^{51}\) However he did allow the exceptions Bube, Glaube, Knabe, Name, Rabe, Same. He accepts the renunciation of final \(-e\) for all but fem. nouns and rejects it even for nationalities. He has der Ruß, der Dän, for der Russe, der Düne. Nevertheless exceptions are to be found in his

\(^{50}\) Some weak nouns have nom. sing. forms with \(-n\) or without \(-e\) in colloquial speech, Duden Grammatik 1966, para. 1715.

\(^{51}\) Gottsched 211.
The syncope of unstressed MHG e

The syncope of unstressed MHG e in posttonic position, i.e. after the main stress, is not subject to so much variation as the apocope of final -e. Before /t/ and /st/ it has been lost quite regularly. Only in the case of the subjunctive forms is there any special development. It is a conditioned sound change which does not take place if the consonant preceding the unstressed vowel was /t/ or /d/. In the adjectives a preceding sibilant also hinders the syncope.

This change is most regular among the indicative past and present tenses of both the strong and weak verbs. The past tense of weak verbs was affected: MHG lebete, NHG lebte. In MHG there were some verbs which had no unstressed e before the ending -te and thus this change had a model. The e has been retained in verbs such as NHG reden, retten past tense redete, rettete. In the second person sing. and pl. past tense of strong verbs the e has also been lost, except after stem final /t/ and /d/. Gottsched prescribes forms without e for the second person sing. In NHG it has usually also been retained after sibilants. In the second and third person sing. of both weak and strong verbs the unstressed e has been lost, NHG lobest, hilfest, lobet, hilfet, NHG lobst.

This did not happen when the stem of a weak verb ended in /d/ or /t/: NHG redest, redet, rettest, rettet. In strong verbs,  

52) Gottsched 121, 119, 124, 125, respectively.  
53) Gottsched 335.
however, which also changed their stem vowel from e to i to form the second and third person sing. present, the syncope still occurred, NHG treten, trittst, tritt, halten,haltst, halt, 
bra
ten, brütst, brüt. These verbs have been taken as an example of the fact that a generative phonological grammar must also include paradigmatic information, in this case, that the stem vowel of the infinitive is different from that of the second and third person sing. present. Vennemann labels such information a 'paradigmatic constraint' and formulates it thus: "The suffixal /a/ of the 2nd and 3rd Person Singular Present Indicative forms of strong verbs with root-final /t/ or /d/ is syncopated if, and only if, a contrast exists between the radical vowel of these two forms and that of the remaining forms of the Present Indicative paradigm of the same verb". 54

We have assumed that the conditioning factor stem final /t/ or /d/ prevented the syncope of unstressed e from NHG onwards. However this is not true. In Early NHG there are many cases such as redt, NHG redet, which show that the syncope of e was widespread earlier and was not subject to any phonological conditioning that we have been assuming. 55 Vennemann shows that in Gottsched's grammar it was precisely those cases with stem final /t/, where the vowel was the same as the infinitive, that show the reintroduction of e, e.g. windest, windet. The syncope of unstressed posttonic e was very general at first, but then e was

54) Vennemann 1968 c, 7.
reintroduced in those cases where the vowel of the second and third sing. present was the same as the infinitive. This reintroduction of \(e\) spread till in NHG it has occurred after every stem final /d/ and /t/ except for verbs like treten and braten. The reintroduction of \(e\) is motivated by the desire to show the verbal endings more clearly, the opposite of what should happen according to Kiparsky's hierarchy.

Adjectives are also subject to syncope in the superlative grade in NHG. This occurs after all consonants except /t/, /d/, /ts/, /ʃ/ and /s/, e.g. sanftest, kürzest, frischest, heißest. A notable exception is groß, which has the superlative gründ. There are cases where \(e\) is dropped, but these are not regarded as acceptable in the standard. After a long vowel or diphthong the \(e\) may be retained "bei besonderer Betonung des Superlativs"; frohste or frohste, freiste or freieste. Polysyllabic adjectives with unstressed final syllables drop the \(e\), e.g. passend, fleißig, gebildet. Gottsched allows elision of the \(e\) in the superlative, he says: "Diese geschieht, nachdem der Wohlklang es erforder. Denn wo gelinde Mitlauter vor dem ste zu stehen kommen, da läßt man es aus: wie in länger, der längste, lieber, der liebste, schöner, der schönste, u.dgl. Wo aber harte Buchstaben damit zusammen treffen, da behält man das e, als der beliebteste, scharfeste, lauteste, wilde, schlechteste: dahin man auch größeste rechnen muß, wenn man es regelmäßig

56) Vennemann 1968 c, 11.

57) Duden Grammatik 1966, var. 2375.
schreiben will, ob man es gleich meistenteils verkürzet, und der größte zu schreiben pflegt. Eben so geht es mit andern, die auf beyderley Art, zumal von Dichtern, gebraucht werden, nachdem sie eine Syllbe mehr oder weniger nötig haben: z. B. der treueste, freyeste, und treuste, freyste, u. s. w.". This passage is worth quoting at length because it shows how little the situation has changed with regard to the omission of e in the superlative since Gottsched's day, in the written language at least. The occurrence of a stem final sibilant does not hinder the syncope of e in the second person sing. present of verbs, e.g. du liest, du reiβt, which are the same as the third person sing. The forms with e are felt to be archaic, poetic or decorative.

In the second person sing. and pl. present and past subjunctive of strong verbs the e is only lost "when the modification of the vowel already distinguishes the subjunctive". Thus the weak verbs retain the e in the present subjunctive: ob du lobest, ob ihr lobet, ob du lobtest, ob ihr lobet. Those strong verbs which do not have a different vowel in past subjunctive from the past indicative also retain the e: ob du fielest, ob ihr fielet. However one has the feeling that such forms as du fielest, du lobest only occur in the paradigms of grammar books and not in everyday speech or writing. Most of the subjunctive forms in

58) Gottsched 261.
60) Curme 1922, 255f.
indirect speech are third person forms. Even in conditional sentences, where such forms could theoretically occur, they are not frequent and could be avoided by using the periphrasis with the subjunctive of werden plus the infinitive. Unstressed e occurred before s in the gen. sing. of strong masc. and neuter nouns in MHG, tages, wortes. For the occurrence of -es or -s in NHG there are no hard and fast rules, but there are at least certain tendencies. The full ending -es always occurs after /s/, Glases, Reflexes, Sitzes, and mostly after /ʃ/ and /st/, Busches, Zwistes. The full -es form is preferred with nouns whose last syllable is stressed, including monosyllabic nouns, Tages, Gemutes. In most other cases the e is dropped. In genitives which have become adverbs, e.g. mittags, tagsüber, unterwegs, nachts, the e has been lost, whereas in the forms of the related nouns it is retained, des Tages, des Weges. This would support the contention that the syncope was originally much more general, and that it has been re-introduced in the gen. forms of monosyllabic nouns. Words such as mittags, tagsüber are relics and have lost their gen. function, and consequently did not have e re-introduced. Another pointer to the fact that the syncope was originally more general is that in colloquial speech e is lost in the endings -en, -el, -em which become syllabic [ɪ, õ, m]. The NHG spelling upholds the fiction that e is still pronounced in these sequences, but this happens only in very formal speech.

62) Viñtor 1904, para. 67, Anm. 3; Siebs 1958, 42f.; WDA 32f.
There has been a general syncope in speech in MHG but e has been reintroduced into the gen. sing. of masc. and neuter monosyllabic nouns, and in verbs and adjectives after stem final /t/ and /d/.

The syncope of MHG e before the main stress has not been as far reaching in its effects. It has affected only a few words which in MHG began with gel- or gen- and which in NHG begin with /gl/, /gn/. The main examples are: gleich, MHG gelich, glaublich, MHG geloblich, Glück, MHG gelücke, Gleis, MHG geloise, (Gleise also still exists in NHG), Gnade, MHG genäde, gnädig, MHG genwädec. There is one example of be- being elided, bleiben, MHG beliben. Most of these words had variants without unstressed e in the first syllable even in MHG.63 The e was regularly elided before a following vowel in MHG, gezzen, past participle gegessen. Since the ge- had lost its function in NHG ge- has been added to make a new participle, gegessen. This syncope occurred much more frequently in UG and it continues to be a mark of the UG dialects of the present day.64 In NHG there is still a contrast between the initial sequence /gel/, where e is unstressed, and /gl/, geleiten : gleiten. This carries on a similar opposition in MHG: geleiten : glitten. In MHG the initial cluster /gn/ was quite rare. The main examples were: gnanren 'to growl', gnaben 'to limp', gnaz 'scurf', gnippe 'dagger', gnenfen 'to bow', gnist 'mange', gniten 'to rub'.65 It is not frequent even in

63) Paul/Moser/Schröbler 1969, para. 24, 8.
64) Kranzmayer 1956, para. 29e, map 20; Keller 1961, 33.
the main examples being Gnađe and Gnadik. In the case of
the development of initial /gen/, where e is unstressed, to
/gn/, a rare cluster has really been kept alive. We cannot say
that a new cluster has been created since /gn/ existed in NHG,
nor can we say with certainty that /gen/ merged with /gn/, since
most of the words containing /gn/ would seem to have died out.
7. CONCLUSION

Having stated at the outset that this work is an attempt to apply the phoneme theory to the phonological development from MHG to NHG, we must now take stock of what has been achieved.

It was found that changes in the number of phonemes played a relatively minor part overall. Most phonemic changes of this kind were mergers, whereby a phonemic opposition was lost, e.g. the merger of medial MHG /v/ and /f/ (see 5.3.4.) and the merger of MHG /s/ and /z/. The change of the MHG affricates /pf/, /ts/ from unit phonemes to the clusters /p/ + /f/ and /t/ + /s/ in NHG could also be regarded as a reduction in the number of phonemes, but this is a somewhat questionable phonemic change, (see 5.12). Only two new phonemes have emerged in NHG, /ŋ/ and /ʒ/, the former, by an assimilation of MHG /ŋ/ and the latter from French loan words.

Changes which have produced new allophones in certain positions were found to be even rarer. The only really convincing example is the development of the allophone [ŋ] from MHG /x/ (see 5.5.1.). It was noted that the development of the allophone [ʒ] probably occurred as early as OHG and therefore does not come into the scope of our work (see 5.6.1.). One of the main reasons why allophonic changes are rarely to be seen is that they are never reflected in spelling. It is indeed possible that many allophones
arose, which, for various reasons may have remained regional or social variants, but which never achieved a widespread usage. An example of this would be the velar [z] of some dialects, (see 5.7.4.)

By far the greatest number of changes was seen to be in the distribution of phonemes, and this may involve the introduction of possible combinations of consonants. For instance, the cluster /nx/ in NHG has arisen from MHG /nk/, NHG venihe, NHG Fenche. In NHG /ʃ/ has much more freedom of occurrence. Initially it appears before any consonant, whereas in NHG it appeared only initially before vowels and /r/. MHG /s/, on the other hand, has become more restricted in its distribution and appears only before consonants in loan words, (see 5.4.3.).

The NHG phonemes /w, h, j/ appeared medially between vowels as well as initially, but in NHG they appear only initially with a few exceptions, (see 5.3.3., 5.5.4., 5.5.5.). The loss of these phonemes intervocally has radically changed their distribution. The distribution of vowels has also been affected. In NHG long vowels occurred freely before /ʃ/, but in NHG (apart from wuschen) and in some pronunciations of the loan words Nische, Dusche, only short vowels occur. Long vowels before medial NHG /ts/ were rare in MHG, but in NHG they have become more frequent, (see 5.1.2.). Through the lengthening of short vowels before single voiced consonants the sequence of a short vowel before a medial voiced consonant was lost from the language. In NHG it has been re-introduced by means of Low German words such as Ebbe, Flagg, Kladde. These changes in the distribution of phonemes
account for the largest portion of phonological changes between 
MHG and NHG. Admittedly they are not radical changes, but they 
were certainly noticed by native speakers, since they have been 
reflected in spelling. The changes in distribution have not 
hindered the re-introduction of the very sequences which had 
previously been eliminated! We have mentioned the case of the 
re-introduction of the sequence of a short vowel before a single 
voiced stop, but other changes in the distribution of sounds have 
been reversed. In NHG /j/ occurs medially once again in the 
words Kojə, Bojə. The sequence /mb/ has been re-introduced by 
loan words such as Bôme, Plombe, (see 5.6.1.). These examples 
show that changes in distribution do not take place primarily for 
functional reasons. Otherwise why should the very sequences 
that the language eliminates be re-introduced again? A language 
and its speakers have the potential ability to produce all sorts 
of phonetic sequences (except, of course, those which are 
articulatorily impossible). We are dealing here with a universal 
phonetic competence, rather than a language specific phonological 
one. Through a change in phonological competence, the sequence 
(mb/, ng/, may be assimilated to [mm], [ŋŋ], and then shortened 
to [m] and [ŋ], but, even so, the speakers do not lose the ability, 
the phonetic competence, to produce the sound sequence /mb/, ng/. 
If such phonetic ability is inherent, then obviously it may be 
used repeatedly. Even if a sequence is lost from a language it 
may be re-introduced at a later date. What has been said above 
applies only to the re-introduction of sequences of already 
existing phonemes and not to new phonemes which have been subsequently 
introduced into the language.
Furthermore the re-introduction of sound sequences applies to the MÜG medial opposition /v/ : /f/, gräven : schlafen. In MÜG, the reflexes of words with medial MÜG /v/ have merged with /f/, Grafen, schlafen. However MÜG does have a medial opposition /v/ : /f/ Hau : Hufe. The /v/ has a limited distribution and comes mostly from LG words, (see 5.3.4.). It was probably the existence of the opposition /v/ : /f/ initially, Wein, fein, that supported the re-introduction of the opposition /v/ : /f/ medially. The loss of [v] medially, however, did not mean its permanent loss. To sum up then, German, or rather the speakers of German, show a remarkable ability to eliminate sounds and sequences of sounds, and then in later generations to re-introduce the same.

It was further noted that there was a considerable amount of change in the incidence of MÜG phonemes. Hitherto these changes have mostly been handled traditionally, as irregular changes. They comprise two kinds:

1) exceptions to sound changes, e.g. MÜG medial /-z-/ is represented by [z] in MÜG, wßze, weibe, but in some words the medial reflex of /-z-/ now belongs to the /z/ phoneme, Lose, MÜG löszen, (see 5.4.4.)

2) minor sound changes which have affected only a small number of words, e.g. some words, which in MÜG contained /ɒ/ have /œ:/ in MÜG, Äne, ohne, (see 6.3.2.). These types of change have long been recognised as such, but it is nevertheless helpful to show how they affect the phonemic system by labelling them changes in incidence. These types of change do not affect the
number of phonemes or their distribution but merely the class to which phonemes belonged historically. Since they have no radical effect on the phonemic system, they were accepted easily and almost unnoticed. The reasons for their acceptance are largely ad hoc and are different in each case.

Some changes were particularly difficult to fit into a phonemic classification, for example, the development of uvular [R], the pronunciation of the initial stops, the shift of NHG /w/ to a labio-dental [v], the shift of NHG initial /s/ to a voiced [z]. They changed neither the number of units, nor their combination with other units, nor their lexical incidence. Some linguists would class these changes phonemically as shifts, (see 2.2.). Houlton considers them to be changes of distinctive features, dental [r] becoming a uvular [R]. Traditionally these changes would simply be discussed in phonetic terms. However none of these changes is directly connected with other changes, such as the English vowel shift and the Germanic Consonant shift. Nevertheless they do have some features in common. The phonetic values in NHG for the resultant sound from these changes show a marked regional variation. Initial u is pronounced as a labio-dental fricative in the standard and in North German, whereas in Central and South German it is pronounced as a bilabial fricative. NHG initial s is pronounced as voiced alveolar fricative [s], in the standard and North German, whereas in Central and South German it is pronounced voiceless or semifortis, but not voiced. NHG initial pre-vocalic z, t, k are pronounced as voiceless aspirated stops in the standard and North German, and initial pre-vocalic b, d, g are
pronounced as voiced stops in the same position in the standard and North German. In Central and South German initial p, t, k and b, d, g, are all voiceless but p, t, k are fortis and b, d, g are lenis. Sometimes there is considerable fluctuation between p, b and t, d, which have merged in some dialects, (see 5.2.2.). Initial MHG r is either pronounced as a dental or uvular sound, but there is no regional difference involved, (see 5.7.1.). These variations in pronunciation are not to be interpreted as an historical change from, for instance, initial voiceless fortis stops to initial voiceless aspirated stops. Instead, this variation represents a change in the selection of the model of pronunciation of German. The pronunciation of initial MHG p, t, k, has probably not changed at all in CG and UG, except for those dialects with consonant lenition. Similarly in North German the pronunciation of LG p, t, k, has not changed, and was then used for the pronunciation of HG p, t, k. The present model is North German, which pronounces the reflexes of the MHG letters, p, t, k, b, d, g, m, n, as has been described. Even in the case of MHG r, the change from a dental [r] to a uvular [R] is a change in the selection of one pronunciation as a model, which is now becoming accepted as standard. Whatever the linguistic theory adopted for historical phonology, whether phonemic or generative, it must deal with changes in the model of pronunciation. In this work the grammatical conditioning of sound changes was allowed, and this has clearly been advantageous. By so doing, sound changes which have hitherto seemed to be irregular, could now be formulated as regular, by a general statement. For instance, an epenthetic [t] was added to
final NHG -n preceded by an unstressed vowel, except where -n, or
-en was a grammatical ending. The change from NHG final -em to
NHG -en took place, except when the -em was a grammatical ending,
(see 5.6.2.). Similarly the loss of final -e did not take place
in certain morphological categories, e.g. in the strong adjective
inflection in the fem. sing., and nom/acc. of pl. all genders,
(see 6.5.2.). These changes show the role that can be played by
the grammatical system in 'blocking' and limiting sound change.
The role of the grammatical system would seem to be mainly a
negative one. No examples were found of a sound changing to
another in one particular grammatical category. Acceptance of
grammatical conditioning in sound change clears historical
phonemics of the charge that it allows only phonetically
conditioned sound change, (see 2.4.).

One factor, which has been of major importance in the historical
phonology of German, and indeed of other languages, has been the
influence of the written word, the spelling. The merger of NHG
/ɪ, iː, ʊ/ and NHG /ɐɪ, ʊu, ou/ is almost entirely due to the
spelling. Since the resultant phonemes in the merger were written
the same, they came to be pronounced the same, (see 6.3.3.). The
retention of the opposition between /p/ and /b/, /t/ and
/d/, and between the front rounded vowels, (see 6.4.), is due
to the fact that these oppositions were maintained in writing.
The influence of spelling can be seen especially clearly in the
adaptation of the NHG opposition /eː/ : /ɛː/ to the spelling distinc-
tion ɛ, ɛɛ, şh and ş, şh, (see 6.3.1.). The development of
individual words was affected by how they were spelt. Variant
spellings, however, which run counter to the regular development of a phoneme may be accepted, e.g. *Neffe*, with **e** before which the vowel was pronounced short. The NHG form was *neve* and the regular development would have led to NHG "Nefe". Whatever theoretical framework is used for historical phonology, the influence of spelling on phonological development must be given due consideration. The traditional 'successes' of historical phonemics were sound changes which were deemed to have been caused by the linguistic system itself, and the reaction of the sound system to sound changes (see 3.1.). In the development from MHG to NHG, however, these types of change played no real part. This is not to say, of course, that they may not do so in other languages or at other stages in the history of German. In this work the dynamic of historical phonology has been provided by the 'variation' of sounds and spellings and their subsequent 'selection' by the standard as it emerged from the sixteenth century onwards. The 'switch' in pronunciation-model during the history of German from UG to North German, (see Introduction), has also provided a dynamic to some changes. The explanation of the sound changes has had to content itself with the limited task of explaining individual changes, sometimes of one word.

The phonemic approach alone would not have provided a dynamic for historical phonology. It is found to be at its most useful in making clear how sound changes have affected the phonemic system of the language. The grading of changes into those which affect the number of phonemic units, their allophones, distribution and
incidence has provided a suitable classification. One of the chief bases for this study of the historical phonology of German has been the study of present day speech, including the standard, colloquial speech and the regional dialects. These are the linguist's laboratory. This was recognized long ago by Luther, but in the context of translation: "man mus die mutter jhm hause/ die kinder auff der gassen/ den gemeinen mā auff dem marckt drumb fragen/ un den selbigē auff das maul schauen".¹ This can equally well be applied to historical linguistic study.

¹) Luther, Werke 4, 184.
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ABSTRACT

FACULTY OF ARTS

GERMAN

Doctor of Philosophy

STUDIES IN THE HISTORICAL PHONOLOGY OF GERMAN

by Charles Victor Jolyon Russ

Studies of historical German phonology have changed little since Neogrammorian times. Hitherto, the sole application of modern linguistic theories, e.g. the phoneme theory, generative phonology, has been to sub-sections of the phonological system. The present thesis is an attempt to apply the phoneme theory to the whole of the development from ME to NHG. To this end the phonemic theory of sound change had to be modified in two ways: to allow the grammatical conditioning of sound change and to suggest a more finely graded scale of sound changes than the phonetic/phonemic sound change dichotomy allowed. Generative phonology was examined, but did not offer any appreciable advantages over the phoneme theory. The role of explanation in sound change was examined and found to be most useful in interpreting individual changes. The two concepts of the 'variation' of items in the spoken chain, and their 'selection' by the linguistic system form the main mechanism of linguistic change. Since there is no direct evidence of how NHG was pronounced, the methods of reconstructing the pronunciation of NHG were outlined and discussed. The phonological development from ME to NHG was dealt with according to the phonetic classes of the phonemes, e.g. the affricates, the short vowels. Some processes, such as rounding and apocope, were also used. Within these sections the changes were set out according
to the effect on the phonemic system, e.g., merger, change in the
distribution or incidence of a phoneme. The majority of changes
were changes in the distribution, rather than the number of phonemes.
Many sound sequences, which were eliminated through sound change,
have been reintroduced through loan words from Low German or
other languages. In general, it was found that spelling pronun-
ciation and the shift of the model for standard German from Saxony
to North Germany had played an important role in the development
from MHG to NHG. In addition, many changes, which had been classed
as irregular, were in fact more regular than had been supposed.
The development from MHG to NHG not only involved phonological
but also grammatical, lexical and sociolinguistic factors.
Historical phonemics itself did not supply the dynamic to the study.
This was provided by the concepts 'variation' and 'selection',
together with the change in pronunciation models.