SOME PHONOLOGICAL ASPECTS OF THE
PENNSYLVANIA GERMAN OF OHIO

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ABSTRACT

This thesis describes the segmental phonemes of Ohio Pennsylvania German and their allophones, lists some of the phonetic processes, and the principal morphophonemic rules.

There are 19 consonants, 14 vowels, and 10 diphthongs, including /ʊ/ and an /æ-ə:/ opposition. There are also four syllabic consonants, including /s/. There are no front rounded vowels. /a:/. corresponds to Standard German /au/, and /ɔ:/ generally corresponds to German /a:/.. The stop opposition is between voiceless aspirated and unaspirated.

The morphophoneme /B/ has the alternants /p v/, and /G/ has /k ñ Ø/. The word /lX 'I' patterns as a clitic, creating the environment for these and other alternations. The alternants of /R/ include /a/.
SYMBOLS AND TYPING CONVENTIONS; ABBREVIATIONS

Consonants

c [c] Voiceless palatal spirant
ê [ê] Voiced velar spirant
r [r] Flapped r
ș [ș] "English r"
y [i] "English y"

Vowels

a [a] Low central vowel
â [æ] Low front vowel
E [ɛ]
I [i t]
O [o ʃ] Centralized mid back vowel
U [U ʃ]

Stress is not indicated in one-syllable words unless relevant to the discussion.

Abbreviations

AE American English
G German
OPG Ohio Pennsylvania German
PA Pennsylvania
PG Pennsylvania German
SG Standard German
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C. INTRODUCTION

0.1 General Scope of the Language

The Pennsylvania "Dutch" are probably mentioned in all U.S. History books, but what is less commonly known is that the language is spoken not only in Pennsylvania, but in many other states as well. According to Compton's Encyclopedia (1970), the Germans made up half of the population of Pennsylvania by 1750. According to Buffington and Barba, (1954:131-8) Pennsylvania German is also spoken in fourteen other states and in Ontario, Canada by a total of some 300,000 people.

Gehman (p. 1) has a somewhat higher figure for both the geography and number of speakers:

It is not generally known that there are more than half a million people in North America who speak a German dialect called Pennsylvania-German or, popularly but less correctly, "Pennsylvania-Dutch", and that possibly another half million are sufficiently familiar with it to be able to understand most of what is said in this dialect. The Pennsylvania-Germans are to be found in almost every state in the Union and in at least five of the provinces of Canada, but the stronghold of the dialect is a group of 25 or 30 counties in southeastern Pennsylvania fanning westward from Philadelphia where 13 families of our forefathers first settled in 1683 and where in the following century hundreds of other German-speaking families likewise sought and found the friendly shelter of Penn's Woods.
As Gehman notes above, the terms "Pennsylvania Dutch" and "Pennsylvania" have come to be freely used to refer to these people and their language even outside Pennsylvania, and it is on that basis that I do the same in this paper. The term "Pennsylvania German" (PG) will be used in this paper to refer to the language as a whole, regardless of its geography. The Ohio dialect will then be called Ohio Pennsylvania German (OPG).¹

0.2 Social Setting
The PG settlers left Europe mainly for the promise of religious freedom. The Pennsylvania settlers belonged mostly to the Lutheran and Reformed churches, with a minority of Amish and Mennonites. The latter live mostly in Lancaster County.

In Ohio, the reverse appears to have been the case, with the Amish and Mennonites as the majority. Consequently, the largest Amish-Mennonite settlement in the United States is located in Ohio. However, I have noted some non-Mennonite² PG speakers in my native community near Berlin. These include farmers, teachers, merchants, doctors, etc.

0.3 Literature
In spite of the fact that PG has no established, generally accepted method of spelling, there is a fair
amount of written literature, especially in Pennsylvania. Professors Buffington and Barba (1954:2) state:

Since the middle of the 19th century a notable folk literature has grown up in Pennsylvania German—nostalgic and humorous verse, essays, anecdotes, short stories, novels and plays. This literary movement has experienced a vigorous growth since the 1920s.

Dr. Ralph Wood of Muhlenberg College has translated and published the entire New Testament in PG (Gehman p.2). Examination of the text, however, reveals a number of dialect differences that make it rather unacceptable to the Ohio reader. This may be one reason that it is practically unknown in Ohio.

Ohio authors have not been nearly as prolific. I know of only three PG books published by Ohio authors. This list includes two books of the Bible published in the last five years. (See bibliography.)

The Amish propagate the language tenaciously, since its use is one of their religious tenets. The non-Amish Mennonites use the language in varying degrees, as a cultural remnant, depending primarily on how much it is used in their community and social circles. Among non-Mennonites the language has almost, if not entirely, disappeared, with possibly a few older speakers left.
0.4 **Geographical Setting**

The largest PG area in Ohio is a six-county area including Holmes, Wayne, Knox, Tuscarawas, Coshocton, and Stark counties. Other major areas are: Geauga County; Defiance County; Union County; and Madison County. Very few Amish live outside the above area, but some non-Amish have migrated to other counties.

0.5 **Purpose**

The purpose of this paper is to present a phonological sketch of the OPG language, especially as it is spoken in Holmes County, which is quite representative of the whole area. There will also be a few notes on dialect variations within the state, as well as an occasional comparison with the Pennsylvania dialect.

The speech style chosen as the norm for this paper is a careful, somewhat slower than normal speed of utterance (except when indicated otherwise, as in the section on stylistic variants).

Except when noted otherwise, modern English loan-words have been excluded. It is not always possible to identify loanwords with certainty without checking historical records, since both languages have a common ancestor. German Bible words used only in a formal religious setting, but not in everyday speech have likewise been excluded.
This paper aims especially to describe the principal allophonic variations and phonetic processes. The principal morphophonemic alternations are also described.

0.6 Informants and Dialects

There is some dialect variation, but the six-county area including Holmes County is fairly homogeneous. I have selected the dialect of this area as the basis for this study. More specifically, my own speech serves as the basis of this description, together with numerous checks on data with my wife Susie Marie, who is a native of Madison County. My mother, Mrs. Norman D. Beachy, presently living in Benton, was also involved considerably in checking data.

Footnotes

1 The term "Ohio German" will hardly serve our purpose, since there is a Swiss German community near Kidron, Ohio. There are also a number of Swiss immigrant families in the OFG area who specialize in making Swiss cheese.

2 Technically, the word "Mennonite" includes the Amish. Historically they were known as Anabaptists.
1. THE ORIGIN OF OPG

1.1 Pennsylvania

According to Compton's Encyclopedia (1970), the early German settlers came from the German Rhineland, Switzerland, and France, but not from Holland.

Buffington and Barba (1944:137) says they came "from various sections of Middle and South Germany, particularly from the Rhenish Palatinate, Württemburg and Switzerland."

Gehman (n.d.:1) says the immigrants came from the Palatinate, Hesse, Alsace, Baden, Württemburg, Bavaria, and other parts of southern Germany, as well as from several regions of Switzerland.

1.2 Ohio

Ohio, being further west, was settled somewhat later. One family history (Miller) traces the migration from Germany to Pennsylvania in 1820. Four years later the whole family moved to Holmes County, Ohio, where they apparently homesteaded. One settler specifically renounced "allegiance to the Duke of Hesse" when he became a U.S. citizen (Miller 1942:3).

Various OPG speakers have reported to me that their ancestors came from Germany, Alsace, or Switzerland, but
the Swiss influence appears to be quite minor in the Ohio dialect. (However, there is a Swiss German area at Kidron, Ohio.)

1.3 Leveling of Dialects

Buffington and Barba (1954:137-8) mention a leveling process as having taken place in the New World: "As these various Middle and South German dialects intermingled in Pennsylvania, they passed through a leveling process which has resulted in a fairly homogeneous dialect." They say that this dialect resembles most clearly the dialects spoken in the eastern half of the Rhenish Palatinate, but this area must not be interpreted as necessarily being the original home of the immigrants.

Gehman (p. 1) notes the same process:

There naturally ensued quite a commingling of various German dialects, which, in the 8 or 10 generations since then, have shown a tendency to combine into one common dialect. But as by far the greatest number of these immigrants came from the Palatinate, the consequent dialect-fusion resembles the Rhine-Franconian dialect of the Palatinate more than any other in Europe today.

(Dr. Gehman is from Pennsylvania, and lived in Germany while earning his degree at the University of Heidelberg.)

Hans Kurath (1972:107) agrees on Rhine Frankish: "The German spoken in southeastern Pennsylvania since colonial times is essentially a descendant of Rhine Frankish, a major regional dialect of German."
1.4 German Dialect Map Comparisons

Since the Ohio settlement is smaller and more recent, I expected to find its equivalent dialect in Germany. However, in checking dialect maps, it appears that probably there have been some changes on both sides of the Atlantic. For example, PG se1 "for 'that'" is almost non-existent in Germany as a modern variant of daβ, which is not used in OFG. On the other hand, PG has slowly been borrowing English words, although the percentage is not high.

The German area that is most similar to OFG appears to be the northeastern part of the Palatinate, extending to the Wiesbaden area across the Rhine. The general area is commonly referred to as Rhine-Franconian.

This area corresponding to OFG is marked by various isoglosses. In noting these boundaries, the dialect variant that corresponds to OFG will be noted first.

The SE border is delineated primarily by such pairs as Appel:Apfel and Fund:Pfund (DSA:62). The NW border is marked by uf:up (DSA:128); schwätzen:swetzen also marks the eastern border.

Further features of PG narrow the corresponding area. There appears to be no phonological border on the west, but vocabulary items like Gaul:Pferd (DSA:8) delineate it fairly sharply. Buffington and Barba
(1954:145) cite other vocabulary that likewise eliminates the western Palatinate. The northern border is further narrowed by *Fescht:Fest* (DSA:23).

One mystery is that the monophthong long a as in PG *haus* 'house' SG *Haus* does not occur in the above area. According to dialect maps, it appears to be used a little bit in a small area in eastern Germany (DSA:24). I have interviewed native Germans, but no one has recognized the OPG variant as occurring in Germany.

This same long a is also used in Pennsylvania, although it is always, or nearly always spelled *au*, which is the SG equivalent in the sound system. This is how Gehman (1979) pronounces it on tape, even though he spells it *au*. In summary, then, this area corresponds quite closely to OPG phonetics for long a.

**Footnote**

1Ernest G. Gehman "traced our Pa.-German vocabulary back to the Middle High German". His dissertation is entitled: "Lautlehre der Pennsylvanisch-Deutschen Mundart von Bally, Pennsylvanien." There is a copy in the Historical Library, Eastern Mennonite College, Harrisonburg, VA.
2. SEGMENTAL INTERPRETATION

2.1 Vowel vs. Consonant /y/

The high vowels [i u] have a tendency to function as consonants in many languages. In OPG, we have [y] occurring in initial position in words like [y'a:] 'yes' and [yUt] 'Jew'. How should we classify this phoneme as a consonant or a vowel?

We note that in OPG stress falls on the first element of a diphthong, as in [f'Ia] 'four'. Therefore the [y] of [y'a:] does not appear to be part of a vowel sequence, but occurs in much the same positions as obvious consonants, like the /t/ in /ta:/ 'dew'. Phonemically, then, we classify /y/ as a consonant in OPG. It does not occur in clusters, and only at the beginning of a syllable.

2.2 Consonant Clusters /ts tʃ/

A stop plus the homorganic fricative often functions as a unit phoneme (affricate). In OPG, [ts tʃ] could be interpreted as either units or sequences, but we prefer to treat them as clusters for three reasons. First of all, OPG has a whole series of clusters composed of stop plus sibilant.
/ps/ in /psUX/  'visitor'  /šnaps/  'whiskey'
/kJs/ in /ksİxt/  'face'  /fIks/  'foxes'
/pŚ/ in /pŚlak/  'to shoe horses' (imper.)  /hIpŚ/  'fancy'
/kŚ/ in /kŚİxt/  'a happening'  /kŚe:lt/  'shelled'
/ts in /tse:l/  'will'  /vEtś/  'to grind'
/tŚ/ in /tŚalpe/  'to walk clumsily'  /taıtŚ/  'German'

There seems to be no reason for treating [ts tŚ] differently than the rest. Heinrich Kelz (1969:65) also interprets affricates as sequences.

In second place, forms such as [vEtś vEtŚt] 'bet' (1 pl. decl. and 2 sg. decl.) are most conveniently analyzed morphologically as a stem /vEt/ plus suffix /e/ or suffix /Śt/. Also, forms such as [vEtś hOtś] '(he) grinds it' and '(he) has it' are best analyzed syntactically as /vEt/ plus /s/, /hOt/ plus /s/ (with /s/ as a reduced form of /Es/ 'it' attaching to the end of words when not stressed).

To analyze [vEtŚt] as /vEtŚt/, [vEtś] as /vEtŚ/, and [hOtś] as /hOtŚ/ would put a word and a morpheme boundary right thru the middle of a phoneme and needlessly complicate both the syntax and morphology.

A third reason for preferring the cluster analysis is that it is simpler in the number of phonemes. Affricate phonemes would add to the number, whereas the cluster analysis adds no new phonemes. 2
2.3 Syllabic Consonants

There are four consonants in native OPG that can form the nucleus of a separate syllable. They are /s m n l/. These syllabic consonants are noticeably longer than the consonantal phonemes.

The situation in English is partly similar, with /r m n l/ commonly listed as syllabic consonants. The two words 'lightening' and 'lightning' are often used to illustrate the difference, with the first one being a three-syllable word and the latter a two-syllable word. Some linguists, however, interpret the syllabic consonants in English as simply the neutral vowel schwa plus consonant, with no phonemic contrast between [l] and [al], to take one example.

In OPG, however, this analysis would not work. We have a good example of contrast between a syllabic consonant on the one hand, and the neutral vowel plus consonant on the other hand as a contrast. We note that the following pair contrasts.

/es/ 'that (conj.) SG dass
/s\4 'the' (neut. art. nom/acc.) SG das

Both of these words are normally unstressed. They are given here as pronounced in isolation—as cited forms. The form /es/ does not appear ever to contract to /s/.
Here, then, we have a clear contrast between syllabic and consonantal ə.

We will now consider syllabic m and n. Like the neuter article /ə/ cited above, these two phonemes also function as separate words by themselves.

/m/ (dat. masc./neut. def. art.) SG 'dem'

/n/ (nom./acc. indef. art.) SG eиn, eine, einen

These syllabic consonants do not appear to contrast with /əm ən/ within a word. However, when we compare larger units—phonological phrases—they clearly contrast, especially in casual speech.

(a) /'Oftəm/ 'breath'

(b) /'Oftəm/ 'often ... to him'

from /'Oft 'i:m/

(c) /'si: 'hEte'n 'ksEнə/

from /'si: 'hEte i:n ksEнə/

'they would-have him seen'

'they would have seen him'

(d) /'si: 'hEт 'ksEnə/

from /'si: 'hEт 'i:n 'ksEnə/

'she would-have him seen'

'she would have seen him'

Under ordinary circumstances, sentences (c) and (d) would never be pronounced the same, whether in slow, careful speech or in fast speech. We classify, therefore, the syllabic nasals /m n/ as separate phonemes on
the basis of the syllabic-non syllabic contrast demonstrated with the word /s/, and also on the basis of
the contrast in larger phonological groups, as in the
above sentences.

The syllabic l does not occur as a separate word
as /s m n/ do. It occurs as a syllable in words like
/'p0t1/ 'bottle', /'pEt1/ 'beg'. There is no con-
trastive evidence to interpret [l] as either C or
VC [æl], as both patterns occur. But by pattern con-
gruity I analyze it as a syllabic consonant similar to
/s m n/. Further examples of syllabic consonants as a
result of contraction will be found in the section on
stylistic variations.

Footnotes

^The examples are all mono-morphemic. These are
all rather infrequent, except /ts/, which is fairly
frequent. However, /k-\ Sg ge 'participle prefix'
is very productive in forming clusters with other
consonants.

^So the situation in OPG is quite different from
Spanish, where no separate phoneme /ʃ/ exists, which
absence argues forcibly for the establishment of the
/ʃ/ phoneme in Spanish.
The syllabic /r/ does not occur in native words. When AE words with unstressed /r/ are borrowed, they assimilate to unstressed [ə]: ['lamba] /'lampa/ 'lumber'. But stressed /r/ does not assimilate, and is used freely in proper names, which often have no native equivalent (e.g. Vernon, Irwin). Therefore stressed /r/ actually is part of contemporary DPG if we consider the whole language.

There are some speakers who sometimes substitute /ɔs/ or /Es/ for the neuter article. Those speakers would potentially pronounce the two words alike, but the grammar would generally clarify as to which word is intended.
3. CONSONANTS

3.1 Release

The lenis stops /p t k/ have both released and unreleased allophones. When these stops occur in final position at the end of an utterance, they are generally released by light aspiration, but may optionally be unreleased.

\[ [k^h \kappa_0^h] /k^h\kappa_0/ \text{ 'head'} \]
\[ [\text{hut}^h] /\text{hut}/ \text{ 'hat'} \]
\[ [\text{sak}^h] /\text{sak}/ \text{ 'bag'} \]

When the stops /p t k/ occur before a pause, they are generally unreleased before a consonant in a following word, but generally released with very light aspiration before a vowel in a following word.

\[ [s 'k^h\text{Int}- || '\text{prIlt}^h] \]
\[ /s 'k^h\text{Int} '\text{prIlt}/ \text{ 'the child cries'} \]
\[ [s 'k^h\text{Int}^h || '\text{Est}^h] \]
\[ /s 'k^h\text{Int} '\text{Est}/ \text{ 'the child eats'} \]

We thus note that released allophones of final stops are in free variation with unreleased allophones. Also, when the released allophones occur, there is partial overlap with the fortis, aspirated stops. However, the final lenis stops /p t k/ always have
considerably less aspiration in their release than the fortis stops /pʰ tʰ kʰ/ have, so they are never really the same allophone as the basic (aspirated) allophone of fortis stops. (The fortis stops occur initially only, and never in CC clusters.)

The lenis stops are always unreleased before other stops when not separated by a pause.

[hak't] 'hoes' (v.)
[lep't] 'lives'
[tok'ta] 'doctor'

We note that lenis stops can be followed by nasals, which are also a type of stop phonetically. As in the pre-stop position, there is no separate release, but in these cases it follows that nasal release occurs, as in the examples below.

['kEpm] 'give to him' (imper. sg.)
['kEpma] 'give to me' (imper. sg.)
['hOtn] 'has him'
['hOtna] 'has' (3 sg. decl.) + 'then' (dat.)

3.2 Energy

In this section we will note the FORTIS-LENIS opposition in German, and how this higher-level feature influences classifying unaspirated and final stops as distinct from the inherently aspirated class of stops.
As background, we note that Moulton (1962:12-3) says:

In terms of our rough, preliminary, three-way phonetic description, the [t] of write is a "voiceless apico-alveolar stop" and the [d] of ride is a "voiced apico-alveolar stop." The feature which distinguishes them is therefore the opposition "voiceless vs. voiced." If we examine them more carefully, we will discover that they also differ in the amount of muscular energy expended in their articulation: [t] is FORTIS (articulated with relatively great muscular energy), whereas [d] is LENIS (articulated with relatively little muscular energy). Sometimes, in fact, it is the opposition "fortis vs. lenis" alone which serves to distinguish the two. In a common pronunciation of /raid/ ride, the vibration of the vocal cords ("voice") that is characteristic of the /r/ and the /ai/ ceases before the articulation of the /d/. The result is [raid], with VOICE-LESS LENIS [q]. The opposition which distinguishes /rait/ write from this /raid/ = [raid] ride is then no longer the double one "voiceless fortis vs. voiced lenis," but simply "fortis vs. lenis."

Our preliminary investigation of English revealed no less than eight "voiceless-voiced" pairs: [p b], [t d], [ʃ z], [k g], [ʃ ʃ], [θ ʒ], [s z], [s ʃ]. All of them are at the same time "fortis — lenis" pairs; and very often, when the so-called "voiced" member of the pairs is actually unvoiced, it is only the opposition "fortis — lenis" which serves to distinguish the two. Particularly common in English is the use of voiceless lenis [ʒ] in final position. Contrast the voiceless fortis [ʃ] of wince [winc] with the voiceless lenis [ʒ] of wins [winz] (though this latter can, of course, also be pronounced with voiced lenis [z]; [wincz]).

The opposition "fortis vs. lenis" is particularly important in German. In Northern Germany the situation is much like that of English: the fortis stops and fricatives are voiceless; the lenis stops and fricatives are typically voiced, but they may also be voiceless. But for many South German speakers the situation is quite different: all stops and fricatives are normally voiceless, and the only feature which groups them into pairs (/p/ — /b/, /t/ — /d/, /k/ — /g/, etc.) is the opposition "fortis vs. lenis."
The basic fortis vs. lenis opposition mentioned above is also true of OPG. 1

Moulton (1957:209) also points out that a stressed syllable has loud stress on the first part, and weak stress on the last part. This fact, which is also true of PG, I consider a conditioning factor for the voice-voiceless, fortis-lenis neutralization in syllable-final position.

In conclusion then, we interpret all neutralized positions as lenis, in contrast to conventional spelling in SG. We therefore have:

/Spɔ:t/ 'late' SG spät
/Stat/ 'city' SG Stadt
/ve:k/ 'road' SG Weg
/hUnt/ 'dog' SG Hund
/kro:p/ 'grave' SG Grab

(Note that the stops in the above examples are all lenis, unaspirated—although the final stops are released when in a breath group.)

3.3 Duration

We have already discussed the syllabic consonants, which are of longer duration than the corresponding non-syllabic phonemes. The OPG consonants, like English and German consonants, vary greatly in duration, depending on the positions in which they occur. For example, the
final m of /mɛm/ 'mother' is considerably longer (the non-syllabic) than the initial one. The difference is not contrastive, but it does help in marking word boundaries within a phonological phrase. (Utterance finally there is some devoicing.)

Since the allophonic differences mentioned above are not distinctive, OPG speakers are not conscious of them. However, they are conscious of two occurrences of the same phoneme or its syllabic equivalent at a word boundary. We have already seen, in an earlier section, the syllabic consonants, which are longer in duration than the corresponding consonantal phonemes.

It might appear that these longer consonants could possibly be confused with a sequence of two consonantal phonemes occurring at a word boundary. Note that in (b) and (c) below, the m is potentially the same length.

(a) [m] /m/ in /'marrow; mark; Mike'
(b) [m:(?)] /m/ in /'Ike' (dat. art.)
(c) [m:] /m'/ in /'same mark'
(d) [m:] /m'/ in /'Mike' (dat. art.)

But we note that there are two other phonetic phenomena that help sort out the borders. In sentence (b) an optional glottal stop before the stressed vowel can clearly signal a syllable division, thus indicating that the previous nasal all belongs to one syllable, and is therefore syllabic m.
But stress\(^2\) is probably the most useful adjunct to length in these examples. Numbers 2 and 3, even tho' about the same in length, are clearly distinguished by contrasting stress. We see then, that length and stress work together to discriminate between syllabic and consonantal phonemes, and to mark the word boundaries.

### 3.4 Phonemic Contrasts

Listed below are the contrasting consonant phonemes, illustrating each, where possible, in word-initial, word-medial, and word-final position. The words were selected to include minimal pairs where possible, while keeping the environment, especially the vowels, as constant as possible at the same time. Blanks indicate non-occurrence in that position.

\[
\begin{align*}
/p^h/ & /p^h\text{o}t/ \quad 'path' \\
/p/ & /p\text{o}t/ \quad 'bathe'/'EplI/ 'apple' /knEp/ \\
& \quad \text{(dim.)} 'buttons' \\
/t^h/ & /t^h\text{e}s/ \quad 'tea' \\
/t/ & /te:k/ \quad 'dough'/'rEtI/ 'wheel' /pEt/ 'bed' \\
& \quad \text{(dim.)} \\
/k^h/ & /k^h\text{e}s/ \quad 'cheese' \\
/k/ & /ke:s/ \quad 'goat'/'EkI/ 'corner' /vEk/ 'away' \\
& \quad \text{(dim.)} \\
/f/ & /fi:l/ \quad 'much' '/lEfI/ 'spoon' /rEf/ 'manger' \\
& \quad \text{(dim.)}
\end{align*}
\]
/v/ /vi:l/ 'to root' /'nEvl/ 'fog' (dim.)
/s/ /se:/ 'to sow' /'fEsIl/ 'barrel' /tEs/
      (dim.) 'this'
/ʒ/ /ʃeː/ 'nice' /'tIʃI/ 'table' /vEʃ/
      (dim.) 'wash'
/x/ /'rExIl/ 'rake' /frEx/
      (dim.) 'fancy'
/ɡ/ /'vEɡI/ 'wagon' (dim.)
/m/ /neːt/ 'girls' /'hEmlI/ 'shirt' /hEml/ 'shirt'
      (dim.)
/n/ /neːt/ 'to sew' /'mEnI/ 'man' /hEn/ 'have'
      (dim.)
/ŋ/ /'ʃlEnI/ 'snake' /Eŋ/ 'narrow'
      (dim.)
/l/ /leːt/ 'to solder' /'fElta/ 'fields' /hEl/
      'light'
/r/ /'reːtlə/ 'measles' /'tæɾə/ 'to dry'
/y/ /ʃaɪ/ 'yes' /ʃa'ʃoːk/ 'to scare away'
/h/ /heːs/ 'hot' /fa'hakt/ 'chopped up'
3.5 Distinctive Features

The consonant system of OPG can be diagrammed as in the chart below.

<table>
<thead>
<tr>
<th></th>
<th>Labial and Labiodental</th>
<th>Alveolar</th>
<th>Palatal</th>
<th>Velar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops Fortis</td>
<td>$p^h$</td>
<td>$t^h$</td>
<td></td>
<td>$k^h$</td>
</tr>
<tr>
<td>Lenis</td>
<td>$p$</td>
<td>$t$</td>
<td></td>
<td>$k$</td>
</tr>
<tr>
<td>Fricatives vl.</td>
<td>$f$</td>
<td>$s$</td>
<td>$\xi$</td>
<td>$x$</td>
</tr>
<tr>
<td></td>
<td>$v$</td>
<td></td>
<td>$\xi$</td>
<td>$g$</td>
</tr>
<tr>
<td>Nasals</td>
<td>$m$</td>
<td>$n$</td>
<td></td>
<td>$\eta$</td>
</tr>
<tr>
<td>Lateral</td>
<td></td>
<td>$l$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flap</td>
<td></td>
<td>$r$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semi Vowel</td>
<td></td>
<td></td>
<td>$\upsilon$</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td></td>
<td></td>
<td></td>
<td>$h$</td>
</tr>
</tbody>
</table>
3.6 **Allophonic Point of Articulation**

The labial feature includes, as in English, both bilabial and labiodental articulation: /pʰ p m/ are generally bilabial, and /f v/ appear to be labiodental in all cases.

The fortis bilabial phoneme /pʰ/, like all fortis stops, does not occur as part of a consonant cluster, and since it does not occur on the end of a syllable, never occurs before another consonant, even across word boundaries. It therefore never occurs before a labiodental phoneme, and has no labiodental allophone, but remains bilabial in all cases.

But /p m/ have allophones in complementary distribution between bilabial articulation and labiodental articulation. The labiodental allophones occur before the labiodentals /f v/, with the point of articulation being assimilated, whether within a word or across word boundaries, illustrating anticipatory assimilation. (A labiodental p will be indicated by [p] below.)

- ['Upfə] /'Upfə/ 'offering'
- [ʃɪmf] /ʃɪmf/ 'scold'
- ['æp ,fələ] /'æp ,fələ/ 'fall off'
- ['læm ,fæŋə] /'læm ,fæŋə/ 'catch a lamb'

We will now consider the alveolar consonants.
These phonemes, when preceding vowels, are typically articulated at the alveolar ridge immediately above the upper teeth.

The phoneme /tʰ/ is articulated with the flat surface of the tongue tip. But for articulating /t n l/ there is relatively little tongue contact, with the tip of the tongue, rather than the blade, being employed.

Although the latter three phonemes are ordinarily articulated at the alveolar point, they have alveo-palatal allophones when occurring before or after the alveo-palatal /ã/, as in the following examples:

/ste:/ 'stone' /te̞-tã/ 'German'
/sne:/ 'snow' /mEnã/ 'person'
/shak/ 'to hit' /falã/ 'false'

The lateral /l/ is always a 'clear' l, and is never velarized as in English (not even before /ã/).

The (voiced) alveolar flap [ɾ] occurs only immediately before a vowel. There are two other allophones of /r/ besides the basic flap. A slightly trilled allophone occurs at the beginning of a phonological phrase before a stressed vowel. The other allophone is like the English r of 'run'—a voiced mid central retroflex approximant. This infrequent allophone occurs principally in stressed syllables after /ã/, in words like [ʃroːt] /ʃroːt/ 'to grind' and [ʃræp] /ʃraːp/ 'screw'.
This allophone also occurs in an unstressed syllable, where two lexical examples have been found occurring after /n/, as well as two examples in word initial position.

['hInI] /'hInI/ 'back' (adv.)
['anə] /'anra/ 'another' (masc.)
['anə] /'anre/ 'another' (neut.)
[ə'seit] /re'seit/ 'recipe'
[ə'saɪn] /re'saɪn/ 'raisin'

In intervocalic position only the flap allophone occurs: /'klEvarIx/ 'jelly-like'.

The alveo-palatals /ŋ y/ are articulated with the tongue blade, and are relatively stable in point of articulation. They are very similar to the English phonemes.

The velar series /kʰ k x ŋ/ shows a regular allophonic shift in point of articulation, depending on occurrence before or after a front or back vowel. Before back vowels the articulation of the series is dorso-velar. Before front vowels, the velars are dorso-palatal, being not as far front as /ŋ y/. Before and after the central vowels /a a:/, the velar allophones are centralized between the two extremes. Of the five velars in the series, only /kʰ k/ occur at the beginning of a morpheme. The diminutive -chen is not a part of OPG, being
replaced by /-l/ SG -lein. The distribution of the front and back allophones is therefore completely balanced. We choose the velar series as the norm, being the easiest to symbolize.

In intervocalic position, the voiced velar or palatal continuant (approximant) is interpreted as a vowel offglide, forming a diphthong with the previous vowel. (In some dialects the velar or palatal varies to a voiced stop ə̞, with the word for 'nail' being ['nagel].

It has been suggested that the ə̞ before consonants also be analyzed as a vowel glide, forming a diphthong. The sequence eːə̞ would then be eːI or eːY. In view of the relatively light friction, this alternative analysis appears to be a valid possibility. But I have chosen to represent the voiced continuant under discussion as ə̞ because of its morphophonemic alternations.

Other factors that I also considered were the fact that no other diphthongs have a long nucleus, and the fact that the ə̞ is articulated somewhat further back than ə̞ in a word like 'pingle 'to iron'.

There is a contrast between [g̊] and [g] in the following words;
['eːɡlə] 'to be repulsive'
['heːɡlə] 'to crochet'

For more examples with ɣ, see section 7.2.

This leaves one phoneme: /h/. This is a voiceless, cavity friction consonant, like English and SG /h/. It takes the voiceless vowel qualities of the voiced vowel which follows it. One allophone might be worth noting. A murmured (voiced) h occurs intervocalically.

[faˈʃakt] /faˈhakt/ 'chopped up'

3.7 Voicing

In general, the voiced consonants—/v ɣ m n ŋ l y/—are articulated with a comparatively light voicing. The lenis stops /p t k/ are basically voiceless, but have voiced allophones in word medial position. The voiced allophones occur at the beginning of an unstressed syllable between voiced segments, i.e. vowels or voiced consonants. Here are some examples, with syllable division indicated.

['heː.gəl] /ˈheːkəl/ 'to crochet'
['hɪŋ.gəl] /ˈhɪŋkəl/ 'chicken(s)'
['hɛŋ.gə] /ˈhɛŋkə/ 'to hang'
['kəɪ.gəl] /ˈkəɪkəl/ 'to gargle'
['mɛl.gə] /ˈmɛlkə/ 'to milk'
['veː.də] /ˈveːtə/ 'to pasture'
['lʊm.bə] /ˈlʊmpə/ 'rag'
One way of symbolizing the voicing process would be:

\[ \text{[stop]} \rightarrow \text{[+voice]} / \text{[+voice]} \stackrel{5}{\text{---}} \text{[+voice]} \]

\[ \text{[stress]} \]

Footnotes

1. This assertion is based on introspection, rather than on analysis by machine.

2. This discussion is based on intuition of stress difference, rather than on a machine data check, so it is not certain which phonetic features are involved in OPG stress.

3. This was suggested to me by Dr. Catherine Callaghan, Ohio State University.

4. This is based on introspection rather than on measurement by instrument. The study of /g/ merits further investigation.

5. Syllable division is determined as follows:

1) In a stressed syllable, a short vowel is followed by at least one consonant. An unstressed syllable can be open.

2) Of the remaining consonants, as many as possible go with the following syllable, subject to permitted sequences at the beginning of a syllable. Any remainder belongs to the first syllable.
4. VOWELS

4.1 Rounding

In stressed syllables the back vowels /u:/ U o:
O o:/ are rounded. This rounding is relatively light,
being most pronounced, as we might expect, on the tense
(long) vowels /u:/ o: o/. In OPG rounding is not a
contrastive feature between vowels, but is simply a
concomitant feature that produces added acoustic separ-
ation between front and back vowels, and between long
and short back vowels. There is no rounding on unstressed
vowels. (See section 4.7 on unstressed vowels.)

4.2 Phonemic Contrasts

In stressed position OPG has twenty-three con-
trasting vowels and diphthongs. The first row below
lists minimal pairs that were available. The second
row lists occurrence before /n/ in syllable final
position.

1. /i:/ /mi:t/ 'tired' /iːn/ 'him'
2. /I/ /mI:t/ 'with' /hIn/ 'in here'
3. /e:/ /pe:t/ 'to pray' /leːn/ 'to borrow'
4. /E/ /pE:t/ 'bed' /rEn/ 'to thrust'
5. /æː/ /væːl/ 'because' /ˈpæːntl/ 'string'
6. /ŋ/ /vʊl/ 'Val'
7. /uː/ /ʃʊːl/ 'school'
| 6. /U/ /ʕULt/ | 'debt' | /fUn/ 'from' |
| 9. /oː/ /lɔːs/ | 'a sow' |
| 10. /o/ /lɔs/ | 'to let' |
| 11. /ɔː/ /ksɔːt/ | 'said' | /vɔːn/ 'to live' |
| 12. /æ/ /sæt/ | 'full' | /læn/ 'to learn' |
| 13. /aː/ /sæt/ | 'south' | /fa'ʃteːn/ 'to amaze' |
| 14. /eɪ/ /ˈtsɛə/ | 'toe; ten' |
| 15. /aɪ/ /raɪ/ | 'inside' | /næɪ/ 'nine' |
| 16. /ʌɪ/ /ruɪx/ | 'quiet' |
| 17. /ɔɪ/ /roɪ/ | 'row' |
| 18. /aʊ/ /ˈnæəl/ | 'nail' |
| 19. /oʊ/ /ˈtrɔə/ | 'to carry' |
| 20. /ɪə/ /fɪə/ | 'four' |
| 21. /æə/ /fæə/ | 'fair' | /kæn/ 'gladly' |
| 22. /ʊə/ /fuə/ | 'team' |
| 23. /oʊ/ /foʊ/ | 'drive' | /koʊn/ 'yarn' |
| 24. (/æ/ | /mɛsə/ | 'to measure'/'meːtlen' 'girls' |

In addition, OPG has a mid-central neutral vowel /æ/ (schwa), which occurs only in unstressed syllables. It lacks contrast with several vowel phonemes. Except for rounding, it is very close phonetically to [ɔ], and should actually be classed as an allophone of /o/. This is the feeling of various speakers, and is also my intuition. But for the pragmatic purpose of this thesis it has been decided to symbolize it as a separate phoneme, as it represents several underlying phonemes. This also
indicates the neutral phonetic quality for the reader in the numerous cases where it occurs.

4.3 Short vs. Long

The stressed vowels differ in basic (phonemic) length as well as height. For example, we will compare /iːl/ in /miːt/ 'tired' and /mɪt/ 'with'. The /iː/ is somewhat longer than /I/, and more close. The length distinction is neutralized in shouting or in singing. Spectrogram measurements show the long vowels to be about 30% longer than short vowels in two-syllable words.

4.4 Stressed Vowel Phoneme Chart

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Central</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>close</td>
<td>iː</td>
<td>uː</td>
</tr>
<tr>
<td></td>
<td>open</td>
<td>I</td>
<td>U</td>
</tr>
<tr>
<td>Mid</td>
<td>close</td>
<td>əː</td>
<td>ɔː</td>
</tr>
<tr>
<td></td>
<td>open</td>
<td>ɐ</td>
<td>0</td>
</tr>
<tr>
<td>Low</td>
<td>close</td>
<td>ɐː</td>
<td>ɔː</td>
</tr>
<tr>
<td></td>
<td>open</td>
<td>ɐ</td>
<td>aː</td>
</tr>
</tbody>
</table>

The chart shows that there is symmetry in long-short pairs except that no short ə occurs. These thirteen vowel phonemes fall into two clear phonetic
classes. The opposition could be called either "long" versus "short", or "centralized" versus "decentralized":
short-centralized: /I E Å a 0 U/
(Ideally we should use capital letters for all centralized vowels, but for typographical convenience this thesis was originally written using Å for the central unrounded vowel commonly called schwa (ə).)

Note that there is a close-open distinction between the low vowels, in spite of the fact that the choice of symbols does not reveal it. The low central vowels /aː a/ are phonetically lower than /æ: å/, but it seems useful to classify them both as having the feature "low". The centralized vowels, then, are located closer to the box with a.

We note, then, that there is a "long-decentralized" correlation as against a "short-centralized" correlation. Both length and location in the vowel space appear to be relevant features. For convenience, we will refer to the vowels as long or short, but this will not imply that the feature of centralization is considered of less importance. Long vowels function as a set in distribution, as against the short vowels as a set.

In stressed syllables there is little allophonic variation except for one phoneme: /aː/. When it is followed by the mid-central vowel /æ/, it is followed by a central
or back upglide as shown below. The height of the glide fluctuates some with speed of utterance and also between speakers.

\[
[a:] \rightarrow [a^\circ - a^\bullet] /\_\_- [ə]
\]

\[
[paː + ə] \rightarrow [pa^\circ ə] 'to build' (inf. -ə)
\]

We note that the \([a:]\) assimilates to a slightly higher articulation. In casual speech the /aː/ of /aːə/ becomes higher and shorter, so that /aːə/ and /aː ə/² merge phonetically. (See the section on diphthongs.) As mentioned in the section on unstressed vowels, /ə/ has two allophones: [ə ə].

4.5 **The Vowel å**

We note that there are both long and short varieties of the low front vowel, namely /åː å/. The vowel chart shows the short open vowel å to be asymmetrical with the back low vowel /oː/, which in stressed syllables occurs only as a long vowel. But in comparing the pair /åː å/ with the rest of the vowel system, we note that it is very symmetrical with the long-short contrast, and these phonemes pattern neatly with the front vowels.

Since this length contrast for å occurs neither in SG (Moulton 1962:62) nor in English, the validity of the contrast might be questioned. Moulton (ibid.) cites the SG å as an anomalous vowel not well integrated into German. In OPG the occurrences of /åː å/ are rather rare.
The diphthong /ā²/, however, is fairly frequent. Neither āː nor ā appear to be part of the ablaut vowel alternations commonly called umlaut in Germanic languages. No words ending in āː have been noted in this study.

The minimal pair cited earlier for this contrast was:

/val:/ 'because'
/val/ 'Val' (name)

We note that one word of the pair is a proper noun, and might suspect the contrast of /āː ā/ to depend on the inclusion of borrowed words from English, but this is not the case. If we include the word ['kāles] 'suspender(s)', a much earlier borrowing from English, now fully assimilated, the contrast before l is sustained.

'ā:nlīx 'finally'
'āp,pāa 'strawberry'
'fā:ndu 'auction'
'kāles 'suspender'
'pā:ntl 'heavy string'
'tāt 'father'
'tē'mātes 'tomato'
'tā:x 'supposedly'
/vā:l/ 'because'
'vā:ls 'which one' (neut.)
'mātl 'Martha' (also 'matl)
'ss'sā:n 'Susan'
Here are contrasts with the neighboring vowel pairs /eː-ʌ/ and /aː-aː:

Ep 'before' teːl 'some'
'æp, pæa 'strawberry' væːl 'which' (neut.)
ap 'off' faːl 'rotten'
ŠtEt 'cities' veːx 'soft'
tät 'father' tæːx 'supposedly'
tat 'there' paːx 'abdomen'

In returning to the subject of borrowed words, we note that they do create an interesting phenomenon when certain minimal pairs are borrowed. In current borrowed AE words the /æ/ phoneme does not assimilate to other vowels, but other phonetic changes occur in conforming to OPG phonology. Consequently, some loan words that are voice-voiceless minimal pairs will neutralize voicing when OPG final devoicing applies. The contrast will then be on the vowel instead of the final consonant as in English. Here are two pairs of words in common use:

[pʰæt] 'pat'
[pʰæːt] 'pad'
[pæt] 'baseball bat'
[pæːt] 'bad' (used only in two idioms)⁹

We will now note how other works have considered the length contrast under consideration. The difference
in length is noted by Buffington and Barba (1954: 4–5), who list a short vowel with the short ones and a long one with the long ones. But since they use the same symbol for both the long and short vowel, it is not clear whether they consider them to be in contrast or in complementary distribution. Their orthography system is partly historical, with the environment predicting length in many cases.

Others, like Hershberger (n.d.) and Troyer (Lore) have completely neglected mention of length for /ä/, possibly being unaware of /ä:/ because of its paucity of occurrence, or because of English influence.\(^\text{10}\)

We have already noted earlier that even without final devoicing, length appears to be phonemic. In conclusion, then, it is conceded that the evidence for length contrast is not equal to that for other vowel pairs, but the contrast nevertheless appears to be supported.

4.6 Diphthongs

4.6.1 We note that there are a number of vowel-plus-glide sequences: /ɛɪ aɪ oɪ uɪ aʊ U ʊ r aʊ aʊ aʊ aʊ/. Examples are listed above with the phonemic vowel contrasts in section 4.2. These vowel-glide combinations function similarly to long vowels, and are therefore interpreted as units. The first part of the diphthong
is always short and centralized. For example, [i] functions as the nucleus of a diphthong, but [i:] does not. Diphthongs are interpreted as units for the following reasons:

1. **Open syllables.** Interpreting these vowels as VV would result in open syllables with short stressed vowels. The overwhelming pattern is for long vowels only to occur in open stressed syllables. (The vowel a is an exception. But it is a closed syllable in the underlying form, being followed by r.)

   /sa^I/ 'pigs'
   /h0^I/ 'hay'
   /a^a/ 'he'

2. **Length.** A weak, but supporting piece of evidence is the fact that the length of a diphthong is approximately the same as a long vowel in the same environment. (Length was checked by instrument.)

3. **Rhyme.** In rhyme, the diphthongs function as one beat, being equivalent to long or short vowels. Here are some examples of one beat (Troyer: Lore):

   /tsa^I t/ 'time', /ma^I / 'in', /mi^a/ 'we', /vo^a/ 'was',
   /fi^a/ 'four', /h0^I/ 'hay'. Here are examples of words with two beats. /'ma^a e/ 'tomorrow', /'spa^I xa/ 'upstairs'.

4. **Environment.** Diphthongs occur in the same environments as long vowels. Both may occur in stressed syllables and be followed by a word boundary or up to
three consonants:

\(/læst\tilde{t}/\) 'you (sg.) sound'
\(/læt\tilde{t}/\) 'you (sg.) suffer'
\(/fæ'læ\tilde{t}/\) 'you (sg.) lose'
\(/v\tilde{a}t\tilde{t}/\) 'you (sg.) wait'

5. The central neutral vowel \(/\varepsilon/\), which is the most frequent unstressed vowel, never occurs as the second element of a diphthong. If diphthongs were vowel sequences, we would expect \(/\varepsilon/\) to occur fairly freely in the sequence. But all the glides move toward the periphery of the vowel space.

6. A weaker, but supporting piece of evidence is the fact some speakers (as I have observed) regularly substitute the long vowel \(/\varepsilon:/\) for the diphthong \(/\varepsilon\tilde{t}/\) in all words in OPQ. \(/ha\tilde{t}/ \rightarrow /h\varepsilon\tilde{t}/\) 'today'

4.6.2 Another possible interpretation of diphthongs would be "vowel plus consonant". The glides \(/\tilde{a}\,a\,U/\) would then be \(/\gamma\,r\,w/\). This analysis would introduce an additional consonant \(w\), which occurs nowhere else. This alternative analysis, then, is rejected.

The diphthongs \(/\varepsilon\tilde{t}\,a\,U\,O\tilde{u}/\) occur only medially. They contrast with the long vowels:

\(/\varepsilon\tilde{t}/\) [\(\varepsilon\tilde{t}\,a\)] 'wagons'
\(/e\tilde{t}/\) [\(e\tilde{t}\,a\)] 'roads'
\(/a\tilde{t}/\) [\(a\tilde{t}\,a\)] 'to strike'
/a:/ [ʌlaː♂e] /ʌłaː/ 'fancy' (pl.)
/oU/ [ʊoUe] 'wagon'
/oː/ [oːe] 'scales'

These diphthongs do not actually contrast with the short vowels [E a 0], like /aI/ contrasts with /a/:
/taI/ 'your'
/ta/ 'to dry'
/taː/ 'to thaw'

But we note that only long vowels, not short ones, occur before (unstressed) /a/. Before unstressed /I/ both long vowels and the well established diphthong /aI/ occur.

/'naI/ 'new' (pl.)
/'raːI/ 'hearse' (pl.)
/naI/ 'new' (neut. sg.)
/raI/ 'in here'

4.6.3 We have analyzed the diphthongs as units on the phonemic level. A deeper analysis is possible with mid vowels and low vowels of the vowel nucleus in complementary distribution. The low vowels [æ ɔ] occur before the down glide [a], and the mid vowels [E O] occur before the upglides [I U], a case of assimilation. If we were analyzing these vowels as sequences instead of units, we would select either the mid or low nuclei as the basic allophones. But since these diphthongs have
been analyzed as units, and their nuclei contrast also as separate vowels, they are not combined on the phonemic level. The mid and low nuclei Э and ɐ are therefore symbolized distinctly in the phonemic notation of diphthongs. This analysis is also confirmed by native reaction and writing.\textsuperscript{11}

4.7 Unstressed Vowels

4.7.1 The following vowels occur also in unstressed syllables:\textsuperscript{12}

\[
\begin{array}{c}
\text{I} \\
\text{ə} \\
(E) \\
(a:)
\end{array}
\]

These unstressed vowel allophones are all a bit more centralized than the corresponding stressed vowels. This centralization is toward the high central part of the vowel space. (This is primarily an articulatory observation.) It is noted that none are labialized.

A note of clarification on the phonemic status of [ə] is in order here. This central vowel occupies a fairly large area of vowel space, part of which is fairly close to [O]. It does not contrast with it, so we assign it as an allophone of /O/. However, since this neutral vowel also represents other underlying vowels such as [E], and is unrounded, we consider it best to
to keep the /ə/ in our phonemic representation. The other vowels [I E a a:] are assigned to the corresponding stressed phonemes.

The marginal unstressed vowels E and a: each occur in only one word in the data: /'e:1Ent/ 'pity'; /'ala:/ 'alum' SG /a'laun/. The distribution of unstressed I is limited to post-stress position, leaving only /ə a/ in pre-stress position.

In native words, velar consonants /x, n/ are nearly always preceded by /I/ in unstressed syllables. /'hUnIx/ 'honey'; /'mIIX/ 'milk'; /'stnIn/ 'regulation'; /'hEIlIn/ 'light'; /'hEnXIn/ 'glove'.

4.7.2 Allophonic Variations. The high mid vowel [±] is in complementary distribution with [ə]. The high allophone occurs in closed syllables, and the mid allophone in open syllables.

[te'no:vit] /te'no:vet] 'this evening' (actually /to'no:vot/)

There is a third allophone [e?] which occurs when the following syllable is a stressed a in the same morpheme: [le?'tan] 'lantern'. The allophone is between [a] and [ə], being lowered by the following a. There is some free fluctuation, and it appears that the contrast between [a ə] is neutralized.

There appear to be two advantages to assigning this allophone to /a/.
1. The lowering can be accounted for as assimilation, a natural process.

2. It keeps intact the phonosyntactic restriction that only /ə/ can occur in the syllable immediately preceding the first stressed syllable within a morpheme.

Footnotes

1 Stressed vowels in the frames h-ə and h-ə̆ were measured. Only a small sample was processed, so the figure may vary with other frames and a larger corpus. The range was 25% to 50%.

2 There are some speakers that use a fricative w here. The same speakers also substitute w for v after consonants, as in [tswe:] 'two'. This allophonic variation is especially prevalent in the Plain City area.

3 An apparent exception is /tæː/ 'door'; /təʊ/ 'gate'. But this contrast is lexical, with no grammatical rules involved. However, the diphthong /æə/, which could be classed as /æə/ structurally, does function in vowel alternations, which in OPG involves changes to plurals, diminutives, and comparatives.

4 In my wife's dialect /ə̈/ /æː/ regularly, and therefore occurs freely, in /tə̈/ /tæː/ 'your' (sg.)
5 The infrequent English name Valentine also has an OPG equivalent, /'fEltI/', but its use has almost disappeared, especially by the younger generation, having been gradually replaced by the English form.

6 This word is regarded by the OPG speech community as a native word, with 'suspenders' as the AE equivalent. It was apparently borrowed from early AE, but has been completely assimilated. It differs from AE phonetically -- the k is voiceless and the l is not velarized. It is both singular and plural, as many native words are, like the words for 'dog', 'shoe', 'toe', 'leg', 'knee', 'cheek', 'finger', 'hair'.

The singular form of the English word 'gallus' is not even listed in Webster's New Twentieth Century Dictionary Unabridged (Second Edition, 1979). The plural is listed as a dialectical variation of 'suspenders'. I have not heard it used in Ohio by non-OPG speakers.

7 Note that the vowel is short, as opposed to the longer vowel in English 'dad'. There is also a cognate 'taitI 'grandfather', which is a short form of 'kros,taitI.'

8 This is only one of several words that can be glossed as 'because'. Here is a sample sentence in phonemic notation.
just because you(sg.) go, need + 2sg. not brag +inf.
'You don't need to brag just because you are going.

These are: /tsuː pæːt/ 'too bad!' and /nEt pæːt/ 'not bad (quite good). The first word of the English idiom is translated literally into OPG. The native word for bad condition is /nEtExt/, and is used everywhere else.

They also failed to note the marginal phoneme /Uː/ in /rUːx/ 'quiet', and /Eː/ in /tseːe/ 'ten'. This could have been a dialect difference, which I doubt is the case for the latter example, since it shows little dialectical variation.

In my first paper on the phonemes (1960) I lacked certain crucial examples, and interpreted the length on /ʌː/ as complementary distribution similar to English. Earlier, however, upon my first exposure to the complementary distribution of AE [ʌː ʌ], I was unconvinced of the lack of contrast in English until I personally verified it by checking the environments. I had reinterpreted /ʌː ʌ/ in English as separate phonemes—due to my native OPG speech.

There are some dialectical variations where /Eə/ is used instead of /ʌə/.
There are also several words with [A], the unrounded vowel corresponding to [o], but since these evidently developed from /toːk/ 'day' in composition, I am excluding them. They are ['mɪtAk] 'noon meal' from /mɪt + toːk/ = 'middle + day'; ['vatAks] 'during the week' (morphology unclear); [tə'mɪtAks] 'at noon today'. (The prefix /tə/, which occurs in many adverbs, probably developed from a form meaning 'this', but is only a conjecture.)
5. STRESS

5.1 Introduction

The term "stress" is used to refer to the relative prominence that is given to particular words in syntactic phrases, and also to particular syllables in a word. OPG functions much the same way as English does in regard to stress. For example, the meaning of the sentence hoil is-

I

kail 'Fetch my horse' varies depending on whether we stress it as in 'hoil is-

I

kail 'FETCH my horse', or hoil ma-

I

kail 'Fetch MY horse', or hoil ma-

I

kail 'Fetch my HORSE'. Similarly, the meaning of the sequence fa ta will vary depending on whether we stress it 'fa ta 'father', or fa ta 'to dry up'. We thus see that stress in OPG is phonemic.

5.2 Syntactic Stress

The stress giving prominence to words within larger units is called syntactic stress, and structures words into phrases, clauses, and sentences. Stress on these larger units will not be described here, as it is beyond the scope of this paper. But we will make some observations on syntactic stress in relation to one-syllable words.

Certain grammatical categories normally are stressed in a phonological phrase, others are not. For example,
nouns and verbs are normally stressed; conjunctions are not. Syntactic stress, then, affects stress on words as a whole, including one-syllable words.

So words in a pair like {\textit{van 'when}} : {\textit{van 'if}} will be stressed differently:

a. 'van 'keːʒt
   when go (2d. decl.)
   'When are you going?'

b. van 'keːʒt keːn Ix 'miːt
   if go (2d. decl.) go I with
   'If you are going, I will go along'

Other pairs with similar syntactic stress contrasts are
{'fa 'before'} (time); {\textit{fa 'for}}; \textit{veːx 'soft}; {\textit{veːx 'because of}}; \textit{voː 'where}; \textit{voː 'when}; \textit{viː 'how}; \textit{viː 'as}.'

5.3 Word Level Stress

Two-syllable words may consist of a two-syllable morpheme, or consist of a root morpheme of one syllable and a prefix or suffix. The affix may be stressed or unstressed. If it has a long vowel or diphthong, it will be stressed. Otherwise, affixes are unstressed.

Stressed prefixes receive only primary stress if stressed. Suffixes, if stressed, receive secondary stress, with the possible exception of \textit{-raː} 'nominalizer'.
'Un + ,klïk  'bad luck' (prefix + root)
'faːl + ,heːt 'laziness' (root + suffix)

So an affix appears to function in the same manner as a root does in a compound word.

Two very productive prefixes that are unstressed are fa- 'intensifier' and ke- 'participle'.

fa'poːe  'bent in an undesirable way'
ke'poːe  'bent' (participle)
fa'prEnt  'burned up'
ke'prEnt  'burned' (participle)

In monomorphemes, if the second syllable is stressed, the previous vowel is always a. If a vowel is long or is a diphthong, it will be stressed.

No minimal pair stress contrasts have been found in monomorphemes. In the stress contrast noted earlier, the word fa'te 'to dry up' is two morphemes. This lack of minimal pairs contrasts with English, where there are pairs like re'lay (v.); 'relay (n.);
or in SG 'August (man's name): Au'gust (month),
(CPG ['ɔːkət]).

The above analysis of two-syllable words also applies in general to longer words.

Although more analysis needs to be done on stress, it appears that other level stress is highly predictable if morpheme boundaries are considered. Intonation is another area that needs further investigation.
6. GENERAL MORPHOPHONEMIC RULES

In this section we will note the morphophonemic changes which occur when no underlying morphophoneme is involved. These changes apply whenever certain phonemes come into contact across morpheme boundaries within a word, and are considered as being both processes and rules.

6.1 Geminate Simplification

A set of two identical consonants is realized as a single consonant.

\[ C_1 C_1 \rightarrow C_1 \]

/pe\l/ + /\l/ \rightarrow /'pe\l/ 'bell' + (sg. dim.)

/ka\l/ + /len/ \rightarrow /'ka\l len/ 'horses' + (pl. dim.)

/ve\st/ + /\st/ \rightarrow /ve\st/ 'wash' + (2sg. decl.)

/pe\st/ + /t/ \rightarrow /pe\st/ 'pray' + (3sg. decl.)

6.2 Assimilation to /\s/

Word stems ending in s and followed by š will assimilate the s to the same point of articulation as the š. The šš sequence is then collapsed into a single segment. We could, of course, delete the s directly before š, but this would miss the generalization of the geminate simplification rule above, and the natural process of assimilation. We can symbolize this rule in
a simple notation as:

\[ s \rightarrow /\dddot{s}/ \quad \underline{\_} \rightarrow /\dddot{s}/ \]

Then \( C_1 C_1 \rightarrow C_1 \) applies, and \( \dddot{s} \rightarrow /\dddot{s}/. \)

The assimilation process can also be symbolized using

a feature notation:

\[
\begin{array}{c}
{\text{[+ front]}} \\
{\text{[+ cont.]}} \\
{\text{[-voice]}}
\end{array} \quad \rightarrow \quad
\begin{array}{c}
{\text{[front]}} \\
{\text{[back]}} \\
{\text{[-back]}}
\end{array}
\]

Since the rules apply whenever they can apply, ordering does not need to be specified. Here are some examples:

\[ /\text{ve:\textipa{s}/} + /\dddot{\text{st/}} \rightarrow /\text{ve:\textipa{s}/} \quad \text{'know'} + (2 \text{ sg. decl.}) \]

\[ /\text{he:\textipa{s}/} + /\dddot{\text{st/}} \rightarrow /\text{he:\textipa{s}/} \quad \text{'hot'} + (\text{superlative}) \]

6.3 **Aspiration**

The prefix /\textipa{k}/ 'participle' precedes stressed verb roots except those beginning with a stop. For example:

\[ /\text{kh/} + /\dddot{\text{\textipa{sh}/k/}} + /t/ \rightarrow /\text{kh\dddot{\text{\textipa{sh}/kt/}}'sent' \quad (\text{part.} + \text{vb.} + \text{part.}) \]

When this lenis \( \dddot{k} \) comes before an \( h \), the aspiration will merge with the unaspirated stop /\textipa{k}/, and become an aspirated, or fortis, stop /\textipa{k}h/. We can formulate this as:

\[ \text{kh} \rightarrow /\textipa{k}h/. \]

There appear to be no occurrences of the aspiration rule with \( p \) or \( t \).

\[ /\text{kh/} + /\text{he:\textipa{s}/} + /\text{a}/ \rightarrow /k^h\text{e:\textipa{s}/} \quad \text{'called'} \quad (\text{part.} + \text{vb.} + \text{part.}) \]
/k/ + /heːl/ + /t/ \rightarrow /kʰeˡt/ 'healed'
/k/ + /ha̰l/ + /t/ \rightarrow /kʰa̰l̩t/ 'cried'

Footnotes

¹The suffix part of a participle takes either -t or -ə, depending on the verb class.
7. MORPHOPHONEMIC ALTERNATIONS

7.0 Underlying //B// and //G//.

There are in German certain underlying voiced stops that manifest an automatic alternation of phonemes in a given word stem. This is somewhat like the ß - v alternation in English in a word like 'knife'. When the plural suffix -s /z/ is added, the ß alternates to a v, and we get 'knives'. But other words (even other nouns), like the word 'safe' do not show this alternation to v when the plural -s is added.

Our discussion in this section concerns primarily the underlying stops, namely //B// and //G//.\(^1\)

We are using, at least as a first approximation, the voiced stop symbols in the following discussion. There are several reasons.

1. Since the stops and voiced fricatives differ by two features—namely voice and continuant—it is logical to suppose that the underlying morphophoneme may lie in between and differ by only one feature from either reflex.

2. The underlying stops of SG in the same words are symbolized this way.

3. Historical discussions on German refer to a voiced series of stops related to present Germanic alternations.
Our two primary reasons for investigating these stop alternations are historic and phonemic motivations. We want to determine what the varied reflexes of //G// are, which phonemes they are allophones of, and specifically determine whether /g/ is a separate phoneme or an allophone of another obstruent.

After noting, then, the alternations in OPG, we may possibly need to revise some of our first approximations to conform to the data.

7.1 Underlying //B//

The alternation for //B// is between a voiceless stop and a voiced fricative (spirant) --/p v/. We note that /v/ can occur in a very limited environment--only immediately before a vowel. It thus never occurs in word-final position, where the voiceless stop /p/ occurs as the reflex of //B//, coming under constraint of the final devoicing rule that operates in German. But the alternation is more than devoicing, since it is between a fricative and a stop. Since the opposition between fortis and lenis stops is neutralized in final position, it does not really matter which stop phoneme we have assigned the allophone to. The alternation is simply between the stop and the voiced fricative.
Here are some examples:

/p/ /he;p/  'hold' (l. sg. decl.)
/p/ /he;pst/ 'hold' (2 sg. decl.)
/v/ '/he;və/  'hold' (3 pl. decl.)
/p/ /halp/  'half' (adv.)
/v/ '/halvI/  'half' (pl. adj.)
/p/ /hap/  'have' (l sg. decl.)
/v/ '/have/  'have' (inf.)

The above examples all show the p - v alternation, but before we proceed further, we note here that not all words show this alternation. Here is an example of a word with no alternation.

/šEp/ 'scoop' (l sg. decl.)
/šEpə/ 'scoop' (inf.)

In examining the data, we note that /v/ occurs only before vowels, and /p/ occurs only before consonants and word boundary [#]. We therefore state the alternation tentatively in these rules:

DEVOICING:
B → [-voice] / \{C\} [#]

CONTINUANT:
B → [+ continuant] / ___ v
In the devoicing above, the environment is stated as being any consonant, but our data above included only voiceless consonants. We therefore suspect voicing as possibly being the conditioning factor, so we examine the following data:

/kEp + nə/ 'give' (sg. imper.) + 'them' (dat.)
/kEp + ma/ 'give' (sg. imper.) + 'me' (dat.)
/kEv + a/ 'give' (stem + inf.)

These data rule out voicing, so our rules work. But when we examine data larger than a single word, we find that the alternation works across a word boundary, with both forms being free words.

/'kEv ##,Ix/  'Do I give?'
 /.kEv ##'Ix/  'Do I give?'
 /'he:v ##,Ix/  'Do I hold?'
 /'he:p##'Ix/  'Do I hold?' (very emphatic)
 /'hEp##,Uns/ 'Give' (sg. imper.) 'to us' (pl.)
 /'kEp##'i:m/  'Give' (sg. imper.) + 'him' (dat.)
 /'kEp##'i:a.rot/  'Give' (sg. imper.) + 'her' (dat.)
 /'kEp##'i:nə/  'Give' (sg. imper.) + 'them' (dat.)

This alternation to /v/ across word boundaries has been observed only before the word /Ix/ 'I', which follows the verb when inverted word order applies. Speed of utterance does not seem to affect it. All verbs with //B// show this alternation.
We note that the word *Uns* 'to us', which also begins with a vowel, does not cause alternation like *Iñ* does. In searching for other examples, we note that the grammar severely restricts the choice of pronouns that can occur after an unaffixed verb, and if we add a noun after the imperative—the obvious alternative test—we then seem to get two phonological phrases.

The best solution to this additional piece of data appears to be to consider *[Iñ]* as a clitic when it follows the verb. Our rules of alternation will still predict the change. I have observed that speakers tend to write the cliticized verb as a single word. This would seem to support the analysis as a clitic.

7.2 Underlying //G//

We have noted that certain occurrences of /p v/ pattern into an underlying morphophonemic //B/>. There are also velar stops and fricatives that alternate, but there is more variety in these alternations and the situation is much more complicated than that of //B/>. There is an otherwise unattested fricative *g* that appears to be related to the set, and also a zero reflex. But the syllable final phoneme is always voiceless as for OPG //B// above.

Here are some examples of words with various affixes, to show the different reflexes of a tentative
The data are phonetic. Note that the alternations are \[k \, g \, \emptyset \, (\text{zero})\] and possibly the glides \([I \, U]\).

\[
\begin{array}{cccc}
\text{Alternation:} & k & \emptyset & \emptyset & g & U/I \\
(1a.) 'bend'&(1.pl) & \text{pi:k} & \text{pi:+e} \\
(1b.) 'bend'&(2.pl) & \text{pi:+et} \\
(2.) 'road' & \text{ve:k} & \text{ve:+e} & \text{veg+I} \\
(3.) 'own'&(adj.) & \text{e:e} & \text{e:gn+I} \\
(4a.) 'to iron' & \text{pi:gl+e} & \text{pi:gel} & \text{pi:gl} \\
(4b.) 'to own' & \text{e:gn+e} & \text{e:gen} & \text{e:en} \\
(5a.) 'wagons' & \text{veG+len} & \text{ve}\text{g+e} \\
(5b.) 'wagon' & \text{veG+I} & \text{voU+e} \\
(5c.) 'to nail' & \text{naGl+e} & \text{na}\text{U+el} \\
(6.) 'to hit' & \text{Slak} & \text{SlaU+e} \\
\end{array}
\]

The \([g]\) above is an allophone of \(/k/\). We recall that in the section on voicing, \(g\) was classed as an allophone of \(/k/\) due to the voicing process:

\[[-\text{stop}] \rightarrow [+\text{voice}] \slash [+\text{voice}] \, \; [-\text{stress}] \]

This is illustrated as follows:

\[\text{[Šno:k + I]} \rightarrow ['Šno:glI] \slash 'Šno:klI/ 'mosquito' + \]

\[\text{[peːt + e]} \rightarrow ['peːde] \slash 'peːte/ 'to pray' + (\text{inf.}) \]

If we list the alternations occurring in various lexical variations in the chart above, we see that all of the alternations are potentially related:
(1) \( k \sim \emptyset \)
(2) \( k \sim \emptyset \sim g \)
(3) \( g \sim \emptyset \)
(4) \( g \sim g \)
(5) \( g \sim U/I \)
(6) \( k \sim U/I \)

We also note the velar alternants occur in both final position and also medially in morphemes. We will examine the occurrence of the morpheme-final alternants first, and then the medial ones.

**Line (1) \( k \sim \emptyset \)**

The alternation to \( k \) in /piːk/ in line (1a.) appears to be another application of the devoicing rule that applied to //B//. We now expand it to include //G// also, making it more general.

DEVOICING:

\[
[\text{stop}] \rightarrow [-\text{voice}] / \_ \_ \# 
\]

But for the alternation to zero in //piːk + ə// \( \rightarrow /piːə/ 'to bend' + (\text{inf.}) \) we formulate this rule:

G DELETION:

\[
G \rightarrow \emptyset / \_ \_ \text{V(C)}\# 
\]

The specification \((C)\) is included above to permit inclusion of the affix \(-a t \ '3d. \ pl. \ decl.'\). We note in passing, that some words with final [k] are not subject to the above deletion rule when affixed.
/šnoːk + ə/ → [ˈšnoːɡə] /ˈšnoskə/ 'mosquitoes'

Line (2) k - ø - g

This reflex g in line (2) //veːG + 1I// ['veːɡlI] 'road' (dim.) simply represents the basic voiced stop morphophoneme.

Line (3) g - ø

We will now note the alternations of morpheme medial //G/>. This includes the phoneme /g/, which contrasts with [g k], which are allophones of /k/:

['eːɡlə] 'be nauseating'

['heːɡlə] /'heːklə/ 'to crochet'

The examples in line (3) are eːs 'own' (neut. sg. adj.) and eːɡnᵢ '(pl. adj.)'. We note an extra g in the plural, so we tentatively posit the underlying form as //eːɡnᵢ// (pl.). (See section 7.3 for a discussion on //N//.) We will first look at rules for the singular. Other attributive neuter singular adjectives do not have an -ə affix, so the ə must be either part of the underlying root, or is inserted by rule. Since //N// will be deleted only in final position, the ə must come before it so that N DELETION can apply. The singular underlying form must therefore be //eːɡn//. This will permit G DELETION to apply:

(G DEL.) 'eːɡn → 'eːn

(N DEL.) → 'eːə
Line (4)  Ꙅ - Ꙍ

We now return to //E:GN+I// 'to own' (pl. adj.). The surface form here is [eːgnI]. At the same time, the surface form ['veːg1I] in line (2) has the underlying form //veːG+I//, which is quite similar, but no frication or deletion rules may apply. Line (4a.) would be //piːg1+e// ['piːg1e].

It therefore appears that we must take juncture into consideration to generate Ꙅ, or else posit a separate //k//. But the two appear to be related: Ꙅ occurs only morpheme medially, Ꙇ occurs only morpheme finally, and Ꙍ occurs in both. This could be formulated in one rule, but it seems more natural for frication to apply intervocalically. We therefore write the VOWEL INSERTION rule so that it will apply to both forms of 'to own':

\[ \emptyset \rightarrow e / \left[ C^{\text{+voice}} \right] = C^{\text{+voice}} + \]

This gives us 'eːGəNI. We then apply a frication rule and a syncope process, with frication applying first.

FRICATION:

\[ G \rightarrow [+\text{fricative}] / V \rightarrow \text{VCV} \]

SYNCOPE:

\[ V \rightarrow \emptyset / \left[ V^{\text{+stress}} \right] C \rightarrow [+\text{syl}]^4 \]

\((V \text{ INSERT.}) \rightarrow 'eːGəNI\)

\((\text{FRIC.}) \rightarrow 'eːgəNI\)
(SYN.) → 'e:gnI
(PHONET.) → ]'e:gnI]

We now examine line (4a.): 'pi:gl+ə 'to iron' (inf.), 'pi:gel ~ 'pi:el (1 sg. decl.). The last word would have underlying //pi:gi/. If only vowel insertion applies, it generates the first variant, but if G DELETION is allowed to apply afterward, the Ø variant results. So we note that some stems are marked as being optionally subject to g deletion.

**Glide g ~ U/I k ~ U**

We will now skip forward to line (6), then back to line (5). In (6) ŝlak, ŝla_u+ə the U glide might appear to be a reflex of //G//. But it seems best to apply the same deletion rule that operates on final //G//, with the g deleted. Since a sequence of two short vowels is not permitted, short vowels become diphthongs. This involves two rules, with the deletion rule feeding the glide rule when the previous vowel is short:

**DELETION:**

\[ G \rightarrow \emptyset / \_ \ V(C) \ # \]

**GLIDE:**

\[ V \rightarrow V^{[\text{hi}] / \_ V} \]

// ŝlaG// / ŝlak/ 'to hit' (sg. imper.)

// ŝlaG + ə// 'to hit' + 'inf.'
(DEL.) $\rightarrow$ ɣlae
(GLIDE) $\rightarrow$ /'ɣla_ae/

The glide in the above rule has the same front-back feature as the vowel nucleus, with a being classed with the back vowels.

We now apply the rules to (5):

/\vEGa// 'wagon'

(DEL.) $\rightarrow$ vEe
(GLIDE) $\rightarrow$ /vE_0/

/\vOGa// 'wagon'

(DEL.) $\rightarrow$ vOe
(GLIDE) $\rightarrow$ /vO_0/

/\naGl// 'nail'

(\ V INSERT.) $\rightarrow$ 'naGel'

(DEL.) $\rightarrow$ 'nael'
(GLIDE) $\rightarrow$ 'na_0el'

In summary, then, the velar alternants are considered as reflexes of an underlying morphophoneme //G//. But the vowel glides are not considered reflexes, since the //G// was deleted.

7.3 Underlying //N//

There are certain words that have an underlying //N// in final position. This is realized as n when a vowel-initial suffix is added. For example, the word for 'stone' is //ýte:N// $\rightarrow$ /ýte:/.² When /-Ix/
'adjectivizer' is added, the η is actualized:

/šte:nIx/ 'stony'. But /šne:/ 'snow' + /-Ix/ is

/šne:Ix/ 'snowy'.

Adjectives, pronouns, and verbs may also have an underlying //N//:

//še:N// /še:/ 'nice' (neut. sg.) + /-a/→/še:na/

'nice' (pl.)

//kri:// /kri:/ 'green' (neut. sg.) + /-a/→/'kri:na/

'green' (masc. sg.)

//pra:N// /pra:/ 'brown' (neut. sg.) + /-a/→/

/'pra:na/ 'brown' (pl.)

//saÍn// /saÍ/ 'his' + /-I=/→/saÍnI/ 'his' (pl.)

nominal

//ke:N// /ke:/ 'go' + /Ix/ 'I'→/'ke:nIx/ 'Do I go?'

//šte:N// /šte:/ 'stand' + /Ix/ 'I'→/'šte:nIx/ 'Do

I stand?'

The //N// occurs only after final stressed vowels in some words, and has the further restriction that it never occurs after the vowel or offglide η, which is always followed by //R//.

7.4 Underlying //R//

It was noted above that certain open syllables are followed by a vowel-initial suffix. The underlying //R// is manifested similarly before vowel-initial suffixes, as η. It likewise shows no consonant reflex when word
final. It occurs after all occurrences of final a, whether that vowel be stressed, unstressed, or a vowel glide. It could also be analyzed as consonant insertion, but since its behavior is similar to //N//, it seems best to classify it the same way.6

There are two ordered rules that apply to the underlying form to produce the surface structure (phonemic). These are:

1. $\emptyset \rightarrow ^a / \left( \begin{array}{c} V \\ \text{-front} \\ \text{-back} \end{array} \right) R$

2. \[
\begin{cases}
R \rightarrow \emptyset / _- \{C\} \\
R \rightarrow r / _- V
\end{cases}
\]

Here are some examples illustrating the application of the rules:

- FIR $\rightarrow fIA^R \rightarrow /fIA^a/ \, \text{‘to lead’ (imper.)}$
- FIRt $\rightarrow fIA^Rt \rightarrow /fIA^at/ \, \text{‘leads’ (3d. sg.)}$
- FIRe $\rightarrow fIA^Re \rightarrow /fIA^re/ \, \text{‘to lead’ (inf.)}$
- haR $\rightarrow /ha/ \, \text{‘lord’}$

If Rule Two is applied first, it may prematurely delete the r, bledding the form so that Rule One can not apply:

- FIRt $\rightarrow ^vfIt \, \text{(instead of fIA^t)}$

The restriction in Rule One excludes the vowel a, which would otherwise become *a^a in the last example above. Other examples in phonemic transcription follow:
a. šta 'to stir' + e 'inf.' → 'štare
b. ma 'mare' + e 'pl.' → 'mare
c. ta 'dry' (neut. adj.) + a 'masc.' → 'tara
d. ṣta 'dry' (neut. adj.) + I 'pl.' → tarl
e. pha 'hear' + e 'inf.' → 'pha'are
f. tla 'animal' + e 'pl.' → 'tla'are
g. vā 'wear' + lI 'I' → 'vā'arlI
h. mEsa 'knife' + e 'pl.' → 'mEsa're
i. vEsa 'to water' + e 'inf.' → 'vEsa're

Footnotes

1 Double slants // // and capitals are used by convention to symbolize underlying representation. The other underlying consonants are //N// and possibly //R//.

2 The problem is further complicated by the fact that there are at least four distinct dialectal patterns for the occurrence of these variants.

3 Other adjectives with a Ø affix in the neuter singular: še;N 'nice', me 'more', kro;sa 'big'.

4 This formulation is too restrictive to include consonant clusters, and needs to be modified later. But it is adequate for the present analysis.
In my wife's dialect this is [štšː]. Minimal pairs for nasalization are:

/nɑː:/ 'new'
/nɑː:/ 'in' = //nɑːN// SG 'hinein'
/nɑːn/ 'nine'
/sɑː:/ 'pigs'
/sɑː:/ 'his'

In reference to phonemic nasalization, Heinrich Kelz (Beam 1970:xxi) says that "these varieties are heard occasionally and cannot be regarded as general patterns."

Actually, most of the speakers I interviewed on this question have reinterpreted //R// as belonging to the suffix which follows it.
8. STYLISTIC VARIATION

In this section we will note various stages of phonetic processes in casual or in fast speech. Whereas these processes are optional, their application in casual speech often makes the results of their application the more frequent form in conversation. As mentioned earlier, the standard chosen for this paper is a somewhat careful style. In published writings on OPG only a minimal amount of variation is noted, and it is generally not clear whether the variations are due to dialect differences or style differences. As is true of most writing systems, variations are generally either used with no explanations, or are totally ignored as occurring, and only a standardized form is written.

In this paper I will cite only processes that occur in my speech, or that I have personally heard. The scope of these stylistic variations is, of course, very broad, and will by no means be entirely covered in this part. The cited forms in OPG have purposefully been kept short in order to focus on the process under discussion, especially for the benefit of the non-German reader.
8.1 Processes Due to Stress Loss

8.1.1 Pronoun Cliticization

Pronouns have stressed and unstressed variants. The stressed variants are free forms, but in casual speech the pronouns—if not stressed for emphasis—tend to combine with a verb to form a larger phonological word. These pronouns are then reduced to a single syllable, generally unstressed. There is a tendency for the first vowel phone to be deleted. Below is a list of the changes in nominative and dative pronouns. (There is no genitive case, and the accusative process is similar.)

<table>
<thead>
<tr>
<th>Nominative</th>
<th>Dative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 sg.</td>
<td>'Ix → -Ix</td>
</tr>
<tr>
<td>2 sg.</td>
<td>'tu: → -te</td>
</tr>
<tr>
<td>3 sg. masc.</td>
<td>'øa → -a</td>
</tr>
<tr>
<td>3 sg. fem.</td>
<td>'si: → -sI</td>
</tr>
<tr>
<td>3 sg. neut.</td>
<td>'Es → -s</td>
</tr>
<tr>
<td>1 pl.</td>
<td>'mIa → -ma</td>
</tr>
<tr>
<td>2 pl.</td>
<td>'tIa → -ta</td>
</tr>
<tr>
<td>3 pl.</td>
<td>'si: → -sI</td>
</tr>
</tbody>
</table>
(1) /'mIə/ 'keːn/
   we go
   'We are going'
→ 'ma 'keːn
→ ma'keːn

(2) /'Siː ,hOt 'iːne 'kɘrIvə/
   she has them written
   'She wrote to them'
→ ,sI 'hOtne ,kɘrIvə

(3) /'aə 'seːnt 'Uns/
   he sees us
   'He sees us.'
→ a'seːnt ,Uns

(4) /'van 'keːn 'siː/
   when go they
   'When are they going?'
→ ,van 'keːnsI

The pronoun /Es/ 'it' changes to /s/ in slow speech and to /s/ in fast speech. The following two sentences then become homophonous:

(5) /'Ix 'vEts 'nEt/
   I whet not
   'I don't whet (it).'
→ ,Ix 'vEts ,nEt
(6) /'Ix 'vEt 'Es 'nEt/
    I would want it not
    'I would not want it.'
→ ,Ix 'vEt a 'nEt
→ ,Ix 'vEt's 'nEt

8.1.2 Loss of Aspiration

The aspirated stops /pʰ tʰ kʰ/ occur only when a stressed vowel occurs later in the word, as in /tʰe'mætəs/ 'tomato'. When a secondarily stressed syllable occurs after the primary stress of a word, it may become completely unstressed, especially when several words are regrouped into one phonological phrase, as in the following illustration:

(7) /'vElɔ,kʰan 'fElt/
    corn     field
    'cornfield'
→ 'vElɔ,kʰan,fElt

Note that the a has become neutralized to e.

8.1.3 Deletion of h

Closely related to the aspiration loss above, is the deletion of h in fast speech. This is somewhat like the deletion of h in the English word 'he' in unstressed syllables. This process of h deletion is especially active in the word 'həvə' 'have', which then cliticizes
with the preceding word. Here is a list of contractions
with the verb 'have.' (Note that the vowel is also either
deleted or becomes neutralized.)

(8)a. 'Ix 'hap → 'Ixəp/Ip 'I have'
    b. 'tu: 'hOst → 'tu:št 'you (sg.) have'
    c. 'āa 'hOt → 'āst/ ,at 'he has'
    d. 'si: 'hOt → 'si:t 'she has'
    e. 'Es 'hOt → 'Esēt 'it has'
    f. 'mIa 'hEn → 'mIān 'we have'
    g. 'tIa 'hEnt → 'tIānt 'you (pl.) have'
    h. 'si: 'hEn → 'si:n 'they have'

The process involving 'hEn goes thru stages, as follows:

'hEn → ,hEn → ,En → -en → -n
(See section 8.1.4 for more details.)

The subjunctive form 'hEt undergoes a process sim-
ilar to the verb 'have. Note that the h is deleted
before the vowel is.

(9)a. Ix hEt → Ix ,Et → 'Ixēt 'I would have'
    b. tu; hEtšt → 'tu:št 'you (sg.) would have'
    c. āa hEt → 'āt 'he would have'
    d. si; hEt → 'si:t 'she would have'
    e. Es hEt → 'Esēt 'it would have'
    f. mIa hEte → 'mIāte 'we would have'
    g. tIa hEtet → 'tIātet 'you (pl.) would have'
    h. si; hEte → 'si:tē 'they would have'
Note that in 3 sg. forms, hOt and hEt become homophonous in the contracted forms. These 3 sg. contracted forms of hOt and hEt will also be suffixed to any noun; likewise becoming homophonous:

\[(10)a. \text{ f\text{r}\text{o}}:\text{ hOt } \rightarrow \text{'}f\text{r}\text{o}\text{;e}t \quad \text{'woman has'}\]
\[\rightarrow \text{'}f\text{r}\text{o}\text{;}t\]
\[b. \text{ hUn}\text{t hOt } \rightarrow \text{'}h\text{Un}\text{t};e\text{t} \quad \text{'dog has'}\]
\[c. \text{ f\text{r}\text{o}}:\text{ hEt } \rightarrow \text{'}f\text{r}\text{o}\text{;}\text{E}t \quad \text{'woman would have'}\]
\[\rightarrow \text{'}f\text{r}\text{o}\text{;}e\text{t}\]
\[\rightarrow \text{'}f\text{r}\text{o}\text{;}t\]
\[d. \text{ hUn}\text{t hEt } \rightarrow \text{'}h\text{Un}\text{t};\text{E}t \quad \text{'dog would have'}\]
\[\rightarrow \text{'}h\text{Un}\text{t};e\text{t}\]
\[e. \text{ k}_h^\text{I} \text{ hEt } \rightarrow \text{k}_h^\text{u};\text{E}t \quad \text{'cow would have'}\]
\[\rightarrow \text{k}_h^\text{u};e\text{t}\]

The 3 pl. forms hEn and hEte are also contracted with nouns:

\[(11)a. \text{ 'v\text{a}I\text{va} h\text{En} } \rightarrow \text{'}v\text{a}I\text{v}a\text{an} \quad \text{'women have'}\]
\[b. \text{ 'hUn}\text{t 'hEn } \rightarrow \text{'}h\text{Un}\text{t};\text{En } \rightarrow \text{'}h\text{Un}\text{t};\text{E}n \quad \text{'dogs have'}\]
\[c. \text{ 'v\text{a}I\text{va} h\text{Ete } } \rightarrow \text{'}v\text{a}I\text{v}a\text{,hE}t\text{e} \quad \text{'women would have'}\]
\[d. \text{ 'hUn}\text{t 'hEte } \rightarrow \text{'}h\text{Un}\text{t},\text{E}t\text{e} \quad \text{'dogs would have'}\]
\[e. \text{ 'k}_h^\text{i};\text{h}\text{Ete } \rightarrow \text{'}k}_h^\text{i};\text{,E}t\text{e} \quad \text{'cows would have'}\]
\[\rightarrow \text{'}k}_h^\text{i};\text{e}\text{t}\]

Note in example c. that the h is not deleted after a two-syllable word.
8.1.4 Vowel Neutralization

As mentioned in the section on unstressed vowels (4.7), the neutral vowel a represents several underlying phonemes. In the sections above we noted various vowels, especially E, that became neutralized to a, and then in many cases even the neutral vowel was finally deleted, especially after a long vowel. This is especially evident in the section on h deletion (8.1.3). Not all the intermediate forms are given, but a often occurs, as in:

'si: hOt \to si:et \to s\textit{it} 'she has'

In the same section, a represents the vowels of h\textit{ap}, h\textit{Ot}, and h\textit{En}. And in section 8.1.1 it represents the vowels of tu: and of i\textit{m}.

8.2 As mentioned in the section on syllabic consonants (2.3), there are four syllabic consonants: /s m n l/.

In fast speech some vowels before /s m n l/ are deleted, resulting in syllabification of some of the following consonants. (In this section all cited forms will be in phonemic transcription unless indicated otherwise.)

8.2.1 Syllabic s

Syllabic s occurs as a word by itself, and also can result from the contraction of Es 'it':

(12) s - es (after s) 'the' (neut. art.) SG das

(13) Es \to es \to s 'it/her' (nom. and acc. pron.)

SG es
(14) es → s(?) 'that' (conj.) SG dass

The alternate form es in (12) occurs when the previous word ends in s and combines into the same phonological phrase. Form (14): es rarely undergoes a process change; (probably not at all in my speech). The forms in (12) and (13) will attach to the previous word and lose their syllabicity, no matter which sound may precede them. The form in (13) generally changes only to -es after s. After s, however, s commonly occurs.

(15) Ix has s 'vEta. 'I hate the weather'
    → Ix 'hases 'vEta
    → (fast) Ix 'has 'svEta

(16) 'si: 'hast a 'vEta 'She hates the weather'
    → sI 'hasts 'vEta

(17) 'tu: 'hašt 'Es 'You hate it!'
    → 'tu: hašt s
    → te 'hašts

(18) 'tu: 'vešť 'es 'Es 'k'huimt!'
    → te 'vešťes 'k'huimt! 'You know that it
      (will) come!'
    → te 'vešťes 'k'huimt!

The article /s/ loses its syllabic quality in fast speech and is then joined to the previous syllable. Consonantal s, in standard speech, never constitutes the first element of a consonant cluster, except across a
morpheme boundary.

(19) Es + t \(\rightarrow\) Est 'eats'

(20) 'si: 'vEšt 'Es 'nEt 'She doesn't wash it'
    \(\rightarrow\) sI 'vEšt s 'nEt
    \(\rightarrow\) sI 'vEšts 'nEt (fast)

8.2.2 Syllabic m and n

The nasals are processed very much like s in becoming syllabic. However, they are resistant to losing their syllabicity when preceded by consonants. There are two words which are inherently syllabic.

(21) /m/ dat. masc./neut. definite art. MG dem

(22) /n/ nom./acc. indefinite art. MG ein, eine, 
    \(\rightarrow\) einen

Within a phonological phrase, the variants sm and sn occur after nasals in a preceding word.

(23) Ix 'sen n \(\mathbf{k}\)Int 'I see a child'
    \(\rightarrow\) Ix 'senen \(\mathbf{k}\)Int

(In full forms the sequence sm has not been observed, and sn has been observed in only one morpheme: \(\text{\textit{\textsuperscript{-}len}}\) 'diminutive'.)

There are also other words that will drop vowels or \(\mathbf{h}\) in the process of forming a syllabic nasal. (See \(\mathbf{h}\) deletion.)

(24) i:n \(\rightarrow\) In \(\rightarrow\) en \(\rightarrow\) n 'in, into; Him'

(25) an \(\rightarrow\) en \(\rightarrow\) n 'to'
(26) Un → e^n → n 'and'

(27) 'hEn → hEn → En → e^n → n 'have'

(28) 'i:m → i:m → e:m → n 'to him'

But after another nasal, the process of merging the vowel and consonant stops short of completely deleting the neutral vowel.

(29) m'Ìa hEn i:m s'kEve 'We gave it to him'

→ ma 'hEnems 'kEve

→ ma *hEnms kEve

(30) Ix khUrn an s hā:s 'I (will) come to the house'

→ Ix *khUrnms hā:s

8.2.3 In careful speech syllabic ₁ occurs only after ti: /me:tl/ 'girl', and əl will occur after other consonants. However, in informal speech /əl/ will become syllabic ₁ after any consonant:

(31) 'me:sl → 'me:sl 'chisel'

(32) 'ke:šel → 'ke:šl 'whip'

(33) 'tEkel → 'tEkl 'lid'

(34) 'špi:šel → 'špi:šl 'mirror'

(35) 'šEnkel → 'šEnkl 'thigh'

(36) 'Epel → Epl 'apples'

(37) 'lEfel → 'Efl 'spoon'

(38) 'nEvel → 'nEvl 'fog'

When a suffix beginning with a vowel is added, the
l becomes consonantal.

(39) 'pEtl + e 'to beg' + inf.
    → 'pEtle

But note that the suffix -t does not affect the syllabic l.

(40) 'pEt1 + -t 'to beg' + 3d. decl.
    → 'pEtlt

We thus see that l is syllabic when it constitutes a sonority peak, and otherwise is non-syllabic.

8.3 Merging of r and t

Intervocalic r and t merge into the same phonetic articulation in casual and fast speech, both becoming flapped r. This process in OPG is somewhat similar to the process in English where ð and t lose their opposition inter-vocally in casual and fast speech.

Even in normal, casual speech it is almost impossible for a native OPG speaker to hear any distinction between intervocalic /r t/. and in fast speech the distinction is hopelessly lost. But in very slow speech, they are phonetically distinct.

We noted in the section on underlying r (7.4) that an underlying final r is realized phonetically before a vowel suffix. This r contrasts with final t in careful speech. (Intervocalic r's within morphemes are very rare.) Here is an example of an opposition.
(41) /šaR + e// /ša + e/ 'to scratch' (as a hen)
    → ['šare] + 'inf.'

(42) ['šate] 'shadow'

However, we note that this opposition is neutralized in fast speech and even in normal casual speech. We might illustrate the process as:

stop t → tap → flap r / V_V,

and 'šate now becomes 'šare. 'Shadow' and 'scratch' have become homophonous. No matter how slow the r is said, it will still be flapped, but the t will slow to a tap or a stop. Here are additional examples of neutralized oppositions (in phonetic transcription):

(43) 'nat 'north' (noun)
    (slow) 'nate 'north' (adverb)
    → (fast) 'nare 'north' (adverb)

(44) /maR + e// ma + e 'fool' + 'pl.'
    → 'nare 'fools'

(45) 'mat 'murder' (command)
    (slow) 'mate 'murder' (inf.)
    → (fast) 'mare

(46) /maR// ma + e 'mare' + 'pl.'
    → 'mare 'mares'

(47) vat 'word'
    (slow) 'vate 'words'
    → (fast) 'vare
(48) `/vaR + a/ va + e 'become' + 'inf.'
    ➞ 'vare 'to become'

However, when an intervocalic t is between unstressed syllables, it will not become a flap, (But it will become voiced.)

(49) 'kʰUmet + e 'horse collar' + 'pl.'
    ➞ 'kʰUmede /'kʰUmet/ 'collars'

This is in opposition to r in 'mEsara 'knives'. (Since underlying r occurs only after a, it is very difficult to find identical environment in this case.)

Since the flap process does not apply after unstressed syllables, we now limit the process to stressed syllables:

\[ t \rightarrow r/[^{+ \text{ stress}}] \rightarrow v. \]

8.4 Fast Speech Processes

We have noted various processes in operation during casual and fast speech. Some additional processes such as vowel and consonant deletion may also occur. These depend both on speed of utterance and also somewhat on stress and position in the stress group.

We will first cite some sample clauses, and then summarize the processes. The first line will show all inherent stresses in words, and would be unnatural. The second line is a literal translation, and the third is
a free translation. The succeeding lines are transcriptions of successively faster speech.

(50)a. 'so: 'es 'āa 'i:n s 'ha:s 'ke:t
   b. so that he into the house goes
   c. 'so that he will go into the house'
   → d. 'so,es 'āa 'i:n s 'ha:s ,ke:t
   → e. 'so:sa ,In s 'ha:s ,ke:t
   → f. 'so:sa ,ns 'ha:s ,ke:t
   → g. 'so:sans 'ha:s ,ke:t (very fast)

(51)a. 'max 'Es 'šnEl 'tsu:
   b. make it quick shut
   c. 'Close it quickly'
   → d. 'max ,Es 'šnEl 'tsu:
   → e. 'max s 'šnEl 'tsu:
   → f. 'maxs 'šnEl ,tsu:
   → g. 'max 'šnEl ,tsu: (very fast)

(52)a. 'kEp 'Es 'tsu: 'mIa
   b. give it to me (dat.)
   c. 'Give it to me'
   → d. 'kEp s 'tsu: ,mIa
   → e. 'kEp s ,tsU ,mIa
   → f. 'kEp s ,tsUma

(53)a. 'kešt 'tu:
   b. go you (sg.)
   c. 'Will you go?'
(54)a. 'tse:lšt 'ke:
   b. will-you (sg.) go
   c. 'Will you go?
(55)a. Ix ke: Es 'seːne
   b. I go it see
   c. 'I am going to see it (or her)'
(56)a. 'Ix 'ke: ,es 'seːne
   b. 'Ix ,keː s 'seːne
   c. 'Ix ,keː:s 'seːne

The stylistic speech processes we have noted in this section are fairly ordered in respect to the continuum from careful speech to fast speech. But the application of the processes is somewhat influenced by the following two factors: (1) length of vowels, and (2) which consonants occur and whether they will naturally form clusters if vowels are deleted.

The general freedom with which the processes apply can be classified as follows:

(1) Generally applies in casual speech:

\[
t \rightarrow [r] / [ + \text{stress} ] \_ V \quad (\text{Sec. 8.3})
\]
(2) Somewhat less free: When primary stress becomes secondary, the following two processes are:
a) Long vowels become short and more centralized: /tu:/ 'you' (sg.) and /si:/ 'they, she' become /tU/ and /sI/.

V: V/ #
b) The consonant h is deleted: /'hEn/ 'have' becomes /'En/: h \rightarrow \emptyset (Sec. 8.1.3)

(3) Generally restricted to fast speed style: This involves complete stress loss on some syllables, with additional processes in operation, and consequent regrouping into larger phonological units.

a) V \rightarrow \emptyset (in Es \rightarrow e\emptyset (55))
b) \emptyset + C \rightarrow C (in e\emptyset \rightarrow e\emptyset (55))
c) C \rightarrow C (in n \rightarrow n (50))
d) C \rightarrow \emptyset (in t \rightarrow \emptyset (54))

In summary we note that there are various synchronic phonetic processes in operation, depending on speed of utterance and various other factors, such as stress suppression and vowel length.
Footnotes

1The original version of this section was written as a term paper and entitled "Some Phonetic Processes in Pennsylvania German". This was for a class at Ohio State University, taught by Dr. David Stampe in June 1979.

2To express past tense, the present perfect is used.

3/th/ has been observed in only 3 "native" words (not recent borrowings from AE):
   thə: 'tea'
thəks 'tax'
thə'mətəs 'tomato(es)'

4The longer form is retained when ə he' is emphasized.
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