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The role of the manual alphabet and fingerspelling in British sign language.

THE ROLE OF THE MANUAL ALPHABET AND FINGERSPELLING IN BRITISH SIGN LANGUAGE

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VOLUME 2

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LIST OF CONTENTS

VOLUME 1

Chapter 1

THE MANUAL ALPHABET AND BRITISH SIGN LANGUAGE

Chapter 2

THE HISTORY OF THE MANUAL ALPHABET

Chapter 3

THE ROLE OF FINGERSPELLING IN DEAF EDUCATION

Chapter 4

THE ROLE OF THE MANUAL ALPHABET AND FINGERSPELLING IN LEXICAL BORROWING IN BSL

Chapter 7

THE USE OF THE MANUAL ALPHABET IN BSL AND ITS DIALECTS AND REGISTERS.

APPENDICES

Chapter 8

RESTRUCTURING OF FINGERSPELLINGS IN BSL

8.0 INTRODUCTION

The use of the manual alphabet may be divided into roughly two types. One use is to provide a single manual letter derived from the first letter of an English word, which may then acquire extra movement or other BSL features. The other is to use more than one manual letter, in the process we may call fingerspelling. For the purposes of this study, fingerspelling will be defined as the occurrence of two or more manual letters in the same lexical item.

This chapter will consider the use of the manual alphabet in fingerspelling in BSL, and the processes that motivate the restructuring that leads to the particular forms used. Particularly, it will cover the importance in restructuring of the form of the English word, the influence of BSL, (including the form of the manual letters), and the signers' fingerspelling and BSL skills.

Padden (1991a) has claimed that "fingerspelling in ASL is more obedient to the constraints of ASL than it is to the constraints of English" (1991a:3). This section will investigate this claim with respect to BSL.

Section 4.6 (p141) has already mentioned the problems of deciding whether a fingerspelling is a loan sign in BSL or an instance of code-switching between BSL and English.

There are certain phonological changes that a fingerspelling may undergo during the process of lexicalisation, and these signs may be considered to be a part of BSL from a phonological view. However, even if the loan is phonologically acceptable, it may not be sociolinguistically so. Conversely, a loan may not have undergone any phonological restructuring but still be considered an integrated loan sign by native signers.

Some fingerspellings are well-established in BSL and others are nonce creations which may depend upon lip-patterns for identification (often made by signers with limited signing skills or sign language learners). In either case, however, there is evidence of certain BSL word-formation processes in operation.

As was mentioned in section 7.1.1 (p211), within fingerspelling there are two main types:

1) Full representations of the orthography of English words, including acronyms
2) Abbreviations of English words

This section will discuss full fingerspellings of English words that are integrated loans, and those which are better considered instances of code-switching. It will also address fingerspellings that are abbreviations of

English words and investigate the processes that create the forms of these fingerspellings.

Two lines of investigation will be pursued here. The first considers what forms of the English word lead to full fingerspellings and what to abbreviations. The second investigates the processes of letter selection in abbreviated fingerspellings.

8.1 BATTISON'S THEORY CONCERNING RESTRUCTURING

The central theoretical background for this discussion was proposed by Battison (1978). Battison's is the most important work to date on the lexicalisation of fingerspellings. Central to Battison's approach is the change occurring in the form of fingerspellings so that their phonology becomes more like other signs in the sign language.

Battison demonstrated that some lexicalised fingerspellings had undergone a variety of changes in the process of changing from a fingerspelling of an English loan word to an ASL lexicalised fingerspelling. By Battison's definition, lexicalised fingerspellings (or what he termed 'loan signs') in ASL are those in which one or two letters from the fingerspelled words have become modified to be part of the sign language itself, eg the ASL sign #DOG. (It was Battison's convention to write lexicalised ASL loan fingerspellings in upper case, and prefixed by "#". This convention will be followed when using Battison's examples.)

In spoken languages, changes during the lexicalisation of loans include vowel epenthesis, consonant changes, vowel harmony and other assimilations and stress shifts. Battison argued that loans into sign languages also undergo changes during lexicalisation.

Battison selected several linguistic changes which marked an ASL lexicalised fingerspelling by comparing the citation form of a loan fingerspelling and the lexicalised form which had characteristics much more like ordinary ASL signs than fingerspellings. These may be summarised in the list below.

i) Deletion - at least one letter hand-configuration has been deleted from the fully fingerspelled English word (eg both #TOY and #DOG delete the manual letter .o.).

ii) Location - the hands leave the citation fingerspelling area at the ipsilateral shoulder during articulation (eg #NO inflected for the spatial location of the indirect object, so that TELL-YOU-NO extends the signing hand out towards the viewer; #COOL starts at the temple and moves out into neutral space).

iii) Handshape - at least one letter hand-configuration changes form during articulation (eg the final handshape in one from of #NG (NO-GOOD) is not a citation fingerspelled .g. but a .g. with a thumb laxly held away from the index finger; the .y. of #YES opens to a '5' hand).

iv) Movement added - a movement is added which is not a part of normal fingerspelling (eg a nodding movement is added to #OR; a circling movement is added to #EARLY).

v) Orientation - the orientation of at least one letter hand-configuration differs from the citation orientation (eg in #HURT the wrist rotates up to 180 degrees, as opposed to 90 degrees in the citation form).

vi) Reduplication - the whole sign is reduplicated (eg #DO is reduplicated with the meaning "what am I going to do?").

vii) Addition of a second hand (eg #BS (BULL-SHIT) in its emphatic form).

viii) Morphological involvement - changes occur so that:
a) grammatical information is added (eg #NO, #DO, #OUT and #ASK are all directional verbs)
and/or
b) the fingerspelling belongs to a class of signs with semantic commonality (eg #SOON is located on a "time-line", as other signs indicating time are).

ix) Semantics - the lexicalised fingerspelling differs substantially in meaning from the English fingerspelled word (eg #CLUB is restricted in meaning to deaf clubs).

It is important to consider that many of these changes are interconnected. For example morphological involvement may be realised through a

reduplication and result in a change in semantics. Also, moving a handshape may result in a change in location.

Battison was not using these variables as criteria to determine if something was a loan sign or not. He left that to sociolinguistic techniques. Instead, he observed the structural differences between some loans and the full citation fingerspelling, taking this as evidence of restructuring the loans.

It is worth investigating the extent to which restructured BSL fingerspellings meet his criteria. Many of the lexicalised, and restructured fingerspellings considered here are derived from longer English words, many of which are at least bisyllabic and polymorphemic. Battison's research was concerned with loan signs derived from short, predominantly monosyllabic English words, none with more than five letters in citation form. The 1978 work does, very briefly, mention other lexicalised fingerspellings from longer words. These will be discussed later in section 8.3.1 (p281).

The ASL and BSL manual alphabets are structurally very different, particularly in that the ASL manual alphabet is one-handed and that the BSL manual alphabet is predominantly two-handed. Because of this, a comparison of ASL and BSL restructured fingerspellings may well show important differences, as well as similarities.

Battison claimed that the structural differences between lexicalised fingerspellings (or loan signs) and citation forms of the fingerspellings are the results of progressive restructuring of a fingerspelled source word. He claimed that "fingerspelled words, which are physically unlike ASL signs, are

systematically restructured to formationally resemble double handshape signs in ASL" (1978:108-109) and that "loans undergo changes that eventually make them indistinguishable from native ASL signs" (1978:179). The implication from this is that, over time, the loans become more and more like a sign.

In section 1.6.2 (p32), the forms of signs using the manual alphabet were placed into one of three clear categories:

1) First letter only of the English word. (This is the most productive process found in the place-names experiment of Study 4, accounting for 26.1% of all responses, and will be considered in detail in Chapter 9 in the discussion of SMLS.)
2) Full production of the English word
3) Abbreviation of the English word. This abbreviation is not random, and four major strategies may be identified:
a) first and last letters only of the English word.
b) letters from the start of two syllables of the English word.
c) producing a sign unrelated to fingerspelling, alone or as a "compound" with a fingerspelled letter.
d) first and second letters of the English word.
There are also various other possible combinations of two or more letters, but these do not form major categories.

Categories 2) and 3) will be considered here.

8.2 FULL FINGERSPELLINGS OF ENGLISH WORDS

It was demonstrated in Chapter 7 that the fingerspelling of whole English words in BSL is a very common use of the manual alphabet. It is particularly used when signers are borrowing an English word, such as a place-name, for the first time and need to establish the meaning of the sign clearly.

Here, however, this chapter is more concerned with the form that such a loan might take if the sign were to be used with sufficient frequency for the full fingerspelling to be unnecessary for the meaning.

Few of the high-frequency fingerspellings are fingerspelled fully, although there are some three-letter signs such as SON and LAW, and many acronyms. Evidence has already been presented to support the claim that three letters of an English word are usually the maximum number that can be borrowed into BSL. The notable exception to this are acronyms in which all information is relevant, eg -r-n-i-d-.

The place-names study shows what factors might lead to the continued use of the full fingerspelling of the English word. The skills of the signer, and the form of the English word are the deciding factors.

In the place-names study, the deaf signers tended to fingerspell more of the place-names fully than the hearing signers did (17% of the deaf group's responses, compared to 10% of the hearing signers' responses). This use of the full fingerspelling is linked to the signers' skills in fingerspelling. Hearing

signers, even those at the level of trainee interpreters, admit to finding fingerspelling one of the hardest parts of signing.

Wilcox (1988) reports that hearing students of ASL rank understanding fingerspelling from deaf people as the second hardest feature of learning ASL, and producing fingerspelling as the fourth hardest. In the light of this, it should not be surprising that hearing signers should use strategies other than fully fingerspelling the place-name. Deaf signers who have grown up using fingerspelling are far more likely to fingerspell a word effortlessly and comfortably when no other word-formation device seems appropriate. (It should be noted, however, that hearing signers exist who are very skilled fingerspellers. Further research is needed to see how the combined fluency of English, BSL and fingerspelling interact in their signing, and to see what differences there are between their signing, and that of fluent deaf fingerspellers with English as a second language. It is also important to remember that there are also deaf signers who are not fluent fingerspellers.)

Full fingerspelling in this study was usually restricted to words of four letters or fewer. There were no full fingerspellings at all of words of more than two syllables.

Because of the varying numbers of items within each type of word, it is most informative to take each word-type and see what proportion of responses in those groups were fully fingerspelled words. This may be seen in Table 8.1.

	Deaf	Hearing
3 letter words	60%	38%
4 letter words	41%	19%
> 4 letters (monosylls)	7%	7%
> 4 letters (bisylls)	4%	4%
> 4 letters (polysylls)	0%	0%

Table 8.1: Percentage of fully fingerspelled words for each word-type.

From these figures, it can be clearly seen that words of more than four letters, irrespective of syllable structure are very rarely signed as full fingerspellings. Shorter words, however, are far more likely to be fingerspelled regularly within BSL without the loss of any letters.

The length of the word appears to be more important than the number of syllables in determining the likelihood of having the full word fingerspelled. For all signers together, there was no difference between the percentage of 4-letter monosyllables and 4-letter bisyllables that were spelled fully (29% of 4-letter monosyllables spelled fully, and 30% of 4-letter bisyllables spelled fully). The same is true for the three-letter words (48% of 3-letter monosyllables spelled fully, and 50% of 3-letter bisyllables spelled fully).

This is also seen with the longer words. A subset of monosyllabic words had six or seven letters. The responses to these were compared to responses to bisyllabic 6-letter and 7-letter words. Again there was remarkably little difference between the two groups (7% of 6-letter and 7-letter monosyllables spelled fully, and 5% of 6-letter and 7-letter bisyllables spelled fully.) These figures may be seen in Table 8.2.

	Monosyllables	Bisyllables
3 letter words	48%	50%
4 letter words	29%	30%
6 and 7 letter words	7%	5%

Table 8.2: The percentage of fully fingerspelled words for monosyllabic and bisyllabic words of different lengths.

The results of the place-names experiment show that full fingerspellings of up to four letters can be used regularly in BSL. The likelihood of a word being fingerspelled fully is also related to the skills of the fingerspeller. Thus, both linguistic and extra-linguistic factors influence the form of a fingerspelling in BSL.

8.3 ABBREVIATED FINGERSPELLINGS

Battison proposed that fingerspellings are abbreviated as part of the lexicalisation process. In the deletion of letters, he proposed that medial vowels or one letter from a geminate cluster is lost. The ultimate form produced by the letter deletion process is (according to Battison) a two-letter abbreviation, made of the first and last letters. Here this theory will be considered for BSL.

Battison's work may be interpreted as implying that lexicalised fingerspellings are the result of progressive restructuring, including progressive deletion of letters from a fully fingerspelled word. No evidence for any progressive letter deletion has been found in this research. This strongly implies that in the majority of fingerspelled loans in BSL there is no "restructuring" but instead the sign is created that way from the outset.

It is proposed here that the processes of lexicalisation of fingerspellings in BSL may vary depending on the form (the length and morphological complexity) of the source English word. Monomorphemic, monosyllabic source English words may perhaps become lexicalised through the same processes described by Battison. The entire English word could at first be fingerspelled and later the medial vowels or half of a geminate cluster may be deleted to create a sign that obeys the phonological rules of BSL. This, however, seems to be relatively rare in BSL.

Longer, polysyllabic or polymorphemic words may be fingerspelled fully, until the meaning is understood by the addressee. In situations where the meaning of the word relies on the bilingual skills of both parties, it is vital for both the signer and the addressee to know the meaning of the English word that is fingerspelled. Once the meaning of the full fingerspelling is understood, or if there is no need to know the full English word, the full fingerspelling can be dropped and a new sign using the manual alphabet can be created. The source of this sign is not the fingerspelled word but the orthographical representation of the written English word (possibly with the mouth pattern of the spoken component). The final form of the sign used contains letter handshapes from the manual alphabet, but this sign never existed as the fully fingerspelled word.

Because of these different processes, it is only possible to compare the lexicalisation of short lexicalised fingerspellings from short, monosyllabic, monomorphemic English words in BSL with those of ASL. Battison did not consider the other lexicalised fingerspellings in any depth (but see section 8.3.1, p281), so it will be necessary to investigate these separately.

The form of some lexicalised abbreviated fingerspellings is dictated by English while others show more influence from BSL. Many of the abbreviations are frequently made in English (eg -l-b-, -o-z-, -e-g-) . Some signs for days of the week and months of the year also follow English patterns of abbreviation (eg -m-o-n- and -j-a-n-). (There are also SMLS synonyms for many days and months, and synonyms which are not based on fingerspelling at all.)

It is particularly noticeable that these abbreviations retaining a full syllable are of the first syllable. In principle there is no reason why they should be of the first part and not the last part. When young children are acquiring speech, they frequently use only the second parts of words, such as *mato* for "tomato", *chine* for "machine" and *raffe* for "giraffe" (Aitchison, 1981). However, when literate adults shorten English words, they tend to shorten them by keeping the first part. This process of back-clipping which creates *lab* from "laboratory", *mike* from "microphone" and *gym* from "gymnasium" is "practically the rule" (Marchand, 1969) for clipping in English, and is much more common than that of fore-clipping which creates *plane* from "aeroplane", *phone* from "telephone" and *van* from "caravan". This suggests that fingerspelling uses a process more like that used in writing than that used in the speech of those who cannot write (such as small children).

Japanese loans frequently only take the first part of an English word, too. (Akamatsu, personal communication, June, 1992). The loans "saike-na" and "demo" are derived from the longer words "psychedelic" and "demonstration" used in English. As spoken languages take the first part of a loan word, there is good precedent for fingerspellings to do the same.

Selection of letters for fingerspelled place name signs often appears to be driven more by BSL sign formation processes than by English processes, eg -e-d-h- and -g-w- for "Edinburgh" and "Glasgow") which are not established English abbreviations. (It must be remembered that only some place-names involve multi-lettered fingerspellings. Others involve the first letter only and still others use signs independent of fingerspelling.)

The place-names data corpus from Study 4 provides considerable useful information about the relationship between form of English words and form of the fingerspelling that is used. Further, supplementary information may come from the See Hear! data of Study 3.

In the place-names study, almost two thirds (64%) of all responses were of one or two letters only. This is in keeping with Battison's claim that the ideal number of hand-shapes in a sign is two. However, 30% of the responses in this study did use more than two letters. Of the responses that used more than two letters, 14% were full fingerspellings and 16% were abbreviations of longer words. As has been shown above, most of these full fingerspellings were of three-letter and four letter-words. (Six percent of the responses used no fingerspelling at all. That is, they were signs unrelated to fingerspelling, unaccompanied by any fingerspelled letters).

It is likely that the elicitation process in this study will have caused people to respond with fingerspellings that were longer than they might have used in conversation because the items are being produced as single lexical items, out of context. Consequently, the responses given here do not necessarily show the *ultimate* form that a fully lexicalised loan would have. They may well show stages in lexicalisation of fingerspellings. This could be evidence that the fingerspellings of more than two letters are "in the process" of becoming the two-letter fingerspellings proposed by Battison as the ideal lexicalised fingerspelling. However, the fact that nearly one third of all responses were of more than two letters suggests that the constraints against fingerspellings that are above the "ideal" two-letter length in BSL are not so strong. Indeed, several informants commented, spontaneously, that they

would not abbreviate three-letter and four-letter words because they were short and easy to fingerspell.

Where the response was to provide an abbreviation that was more than two letters long, the deaf signers provided longer abbreviations. For hearing signers the mean abbreviation length was 3.18, and for deaf signers, it was 3.86. The number of abbreviations of each length given as responses for deaf and hearing people is shown in Table 8.3.

	Deaf	Hearing
3 letters	150	236
4 letters	69	34
5 letters	41	0
6 letters	20	0
7 letters	4	0
8 letters	3	0
9 letters	1	1

Table 8.3: Number of responses of abbreviations of increasing length, given by deaf and hearing signers.

This may be taken as evidence that deaf signers are more skilled in fingerspelling and more prepared to use it than the hearing signers. Again, then, there is evidence that the signer's fingerspelling skills determine the ultimate form of the fingerspelling. This difference in fingerspelling ability has

been discussed in section 8.2 (p272) and will be discussed again, in more detail, in section 8.10 (p323).

The different ways of forming an abbreviated fingerspelling will now be discussed. The retention of the first and last letters of the English word, retention of letters from the start of two syllables of the English word, retention of first and second letters of the English word and, finally, the retention of other combinations of more than two letters will be considered.

8.3.1 Retention of first and last letters of the English word

This process occurs under at least two circumstances. In the first circumstance, as observed by Battison (1978), the medial vowel of a three-letter word is dropped, leaving only the first and last. (In four-letter words a vowel is also likely to be dropped, leaving the remaining three consonants. Battison argued that this was an unstable form and predicted that there would be further deletion or conflation to create a two-letter sign with only the first and last letters remaining. For further discussion of vowels and four-letter words, see sections 8.3 (p276) and 8.3.4 (p297).

In the second situation, a word of more than three or four letters has all the medial letters omitted, and only the first and last letters are retained. It was hypothesised that this occurs when the English word has particularly distinctive letters in final position.

Battison briefly mentions that the first and last letters are commonly retained even in the abbreviation of longer words. He gives examples such as t.w.p.

(TOWNSHIP), .f.w.y. (FREEWAY), and .s.e.c.y. (SECRETARY), all of which retain first and last letters. Battison suggested that the fingerspellings frequently retain the last letter, because they are the boundaries of the word and because in continuous fingerspelling, the first and last letters are held longer than for intermediate letters. Battison cites an experiment by Reich in 1974 which found that a teacher using the Rochester Method held first and last letters three times longer than other letters. From this data, Battison suggested that this extra hold makes first and last letters more salient, and this increased salience results in their retention in an abbreviation. Battison finished his discussion of the use of first and last letter retention by saying:

> Whatever the reason for the retention of initial and final handshapes in loan signs, such retention is a change consistent with the structural demands of the ASL native lexicon, which limits the handshapes of a single sign to two. The reasons for choosing a particular pair from a sequence will remain unclear until more specific evidence is gathered. (1974:188)

The work here should help provide this evidence.

Fingerspellings which retain the first and last letters are not very common in the See Hear! corpus. There were only 19 types identified, and of these 19, four could be classed as representations of English abbreviations being fingerspelled fully, rather than abbreviations made BSL processes. These were -d-r- ("doctor"), -f-t- ("foot"), -r-t- ("Right" as part of "Right Honourable") and -s-t- ("saint"). Six more were abbreviations of place-names - evidence that this is a naturally productive process in the formation of place-names in BSL.

The types seen on See Hear! were a combination of signs that may be considered established, based on the frequency of their occurrence, and those signs that were clearly nonce creations. Lexicalised abbreviations included -c-b- ("club") and -a-t- ("about"). Nonce creations included -c-l- ("council") and -s-y- ("society"). In both cases, the forms were the same, ie selection of the first and last letters from words that were more than three letters long.

Considerable information about this process comes also from the place-names study.

In response to three-letter words, hearing signers were slightly more likely to use the first and last letters than deaf signers were. (19% of responses to 3-letter names were first and last letters for hearing signers, and 14% of deaf signers.) This difference is more pronounced for four-letter place-names (19% of responses to 4-letter names were first and last letters for hearing signers and 8% for deaf signers). This difference is probably a corollary of the result of deaf signers producing more full fingerspellings for 4-letter placenames than hearing people did. However, overall, 17% of all three-letter placenames produced responses of first and last letters. This figure is slightly lower for all responses to four-letter stimuli (14%).

These results do not provide overwhelming evidence to support any theory requiring the loss of a medial vowel as part of a reduction to a two-letter abbreviation. However, it must be said, that where only two letters were retained in these fingerspellings, they were almost invariably the first and

last. (On occasion they were the first two letters. This will be discussed in section 8.3.3, p293, concerning the first two letters).

Nature of the Handshape of the Last Letter

The nature of the last letter of the place-name does seem to have some influence on the choice of letter retained in the abbreviation. In this group of responses, in which the first and last letters are retained, a count was made of the number of times each letter was retained as the last letter. This was then compared with the number of times each letter did finish a word in the stimulus set. The results may be seen in Table 8.4.

Retention rate	Letter retained
Under 5%	a d e o s u
5-10%	g h n p r
11-15%	k l t y
16-20%	b m
Over 20%	f w x z
n.a.	c i j q v

Table 8.4: Percentage retention of the last letter when first and last letters are used.

As may be seen in this table, the vowels are very unlikely to be retained when in word-final position. This supports the general theory that vowels are likely to be dropped during the abbreviation that leads to lexicalisation. It is

in keeping with Battison's observation that medial vowels are likely to be lost in lexicalisation. As vowels are less important than consonants for the discrimination between words, it should be no surprise that they are unlikely to be retained, even in the word-final position. Another reason may be the perceptual and productive problems associated with the vowels, mentioned earlier in section 5.1.2 (p162), that have caused problems for fingerspellers since Kitto's time.

However, the reasoning given for the low retention of vowels does not explain the low retention rate of the letters "d" and "s". The one feature that all these letters with a low retention rate have in common is that they are made using hand-arrangements that involve a fingertip touching another fingertip. The vowels are all made by the fingertip of the active hand touching the tip of one of the fingers of the passive hand. The manual letter -d- has a hand-arrangement in which the tips of the index finger and thumb have to contact the index finger of the passive hand.

This makes all these manual letters hard to articulate. As part of fingerspelling, the particularly small surface area for contact is less of a problem because the target does not necessarily have to be hit. It is possible to approximate the hand-arrangement without too much loss of information because the general pattern of movement of the hands is more important than the individual hand-arrangements. However, when a manual letter is being held because it is word-final, the signer cannot miss the target without loss of information.

The manual letter -s- needs special consideration here because it has two possible hand-arrangements. It may be made with the little fingers either touching at the fingertips, or interlocking. At the end of a fingerspelling they tend to interlock, (but by no means always) and so cannot be exclusively explained by the small surface target area.

Other possible explanations for this infrequent use of a terminal -s- need to be proposed. It could be related to the fact that [s] is a high-frequency speech sound that is particularly hard for many deaf people to hear and may not be pronounced by them. Alternatively it could be related to the fact that the 'I' handshape is a marked handshape and the interlocking of two-hands is a marked hand-arrangement. The combination of these two marked forms may be the cause of the rarity of -s-.

The use of the 'I' handshape in BSL for any lexical item outside the semantic group of items using the so-called "bad" handshape is not common. In the BSL/English dictionary there are 29 signs using this handshape, out of 1739 signs. Of these, two signs are SMLS (SOUTH and SILVER), and 19 are those using the 'I' handshape with a symbolic association with "bad" eg ILL, TERRIBLE and WORST. One was a SMLS based on the Irish manual letter .i. (INSURANCE).

It is relatively rare in BSL for both hands to interlock rather than merely contact. There are only two other manual letters apart from -s- that interlock: -q- and -w-. In the BSL/English dictionary only 1.5% of all signs (26) interlock, and four of these 26 signs are SMLS made with -q-, -s- and -w-.

Both -q- and -w-, however, are made with unmarked handshapes, even if the hand-arrangement itself is marked.

Thus, the combination of a marked handshape and the restriction imposed by two interlocking hands or touching fingertips, must make the interlocking form of the manual letter -s- unproductive, and the small surface area of the contacting fingertips makes the other form unproductive. The combination of all these factors within BSL makes the manual letter -s- rare in terminal positions of a fingerspelling using first and last letters.

The letter "h" should perhaps be seen as a special case here. There are relatively few two-letter abbreviations ending in -h-. In no cases did the place-name stimulus end with an "h" preceded by a vowel which could easily be deleted. The "h" was always part of a cluster as "sh", "ch", "th" or "gh". Consequently, the influence of English may be seen in the use of word-final -h- in abbreviations of these place-names. It might be expected that deaf people, placing less importance on the sound made by these consonant clusters than hearing people do, would be more likely to split the clusters apart and so use only the last letter of the cluster (the single -h-). In fact this is not the case, and hearing people are more likely to do this. Of the 18 instances of use of a word-final -h-, 11 are hearing responses, and 7 are deaf responses. It could be argued that the reason for this is that the hearing people find the preference to use fewer letters more powerful than their feeling that both letters of the cluster are needed to represent the pronunciation.

For both hearing and deaf people, however, the retention of consonant clusters occurred for approximately 10% of all responses to words ending in a consonant cluster. Taking these results together leads to the finding that the -h- is retained at the end of 15% of all responses, making -h- one of the letters most likely to be retained.

In a general description, the letters most likely to be retained as final letters are those with a symmetrical manual letter. All the manual letters that are retained in over 15% of all occasions of abbreviations of first and last letter types are symmetrical. If -h- is included here (given the explanation above) it is one more symmetrical manual letter that is likely to be retained. Conversely, -g- is the only symmetrical letter to have a low retention rate in these conditions. All the other manual letters are asymmetrical.

From this it may be concluded that the physical form of the handshapes and hand-arrangements in the manual letters involved affects the form of the abbreviation of the English word and produces the form of the restructured fingerspelling.

8.3.2 Retention of letters from the start of two syllables of the English word

Despite the relative frequency of first and last letter abbreviations, especially with three and four letter words, there are other productive ways of forming fingerspelled abbreviations. One of these is the retention of letters from the start of two syllables, or two morphemes of the English word. This is not a process mentioned by Battison because he focussed upon short, mainly monosyllabic words.

The retention of letters may be from the start of two syllables, or two separate morphemes. For example the letters -n- and -c- in the widespread form -n-c- from "Newcastle" use the manual letters from the start of the two morphemes, even though the word has three syllables. "Hypothermia" in the See Hear! data was abbreviated to -h-t-, taking the first letters from the two morphemes of the word. In another instance abbreviation in the See Hear! data, however, "licence" was abbreviated to -l-c-, where there are two syllables, but only one morpheme.

From analyses conducted on the data from the See Hear! corpus, it would appear that this method of abbreviation of fingerspellings is not particularly productive in general BSL word-formation. The total number of occurrences of these abbreviations in the corpus of See Hear! data was 112 (only 0.6% of all uses of the manual alphabet). Within place-name signs, however, as was reported above, it is noticeably productive, accounting for 10.7% of all responses in the place-names study.

There were 22 different types of this fingerspelled abbreviation in the See Hear! corpus. Nearly one third of these (seven) were of place-names (eg -m-c- "Manchester"; -r-m-, "Roughmoor"; and -m-f-, "Millfield"). Two more were the widespread fingerspelled abbreviations -g-f- and -g-m- ("grandfather" and "grandmother").

Interestingly, and importantly, seven of the 22 types were exclusively used by the presenter who signed and spoke simultaneously, whose first language is English. The results of the place-names experiment also show this process

of selecting letters from different syllables is a process more favoured by hearing signers (that is, whose first language is English) than by deaf signers. This may be seen in section 8.5 (p310), below.

The sole fingerspelled abbreviation that is not a placename that might be considered established on the grounds of number of tokens counted is -p-j- ("project"). Nonce occurrences include -g-c- ("genocide") and -p-f- ("professional"). All the abbreviations came from English words of six letters or more.

Again, as with abbreviations using first and last letters, the place-names experiment furnishes a large amount of useful data upon this process.

It would appear that the use of this process of taking first letters from each syllable is related to the number of syllables and the overall length of the English place-name. Analysis of data from both the deaf and the hearing signers shows an increase in use of this process as the number of syllables and letters of the place-names increase. This may be seen in table 8.5.

	Deaf	Hearing
2 sylls, 4 letters	1% (2/203)	8% (17/203)
2 sylls, >4 letters	13% (94/726)	18% (124/706)
>2 sylls	14% (56/405)	27% (105/392)

Table 8.5: Percentage of responses taking letters from the start of each syllable, for words of increasing length.

The figures in brackets in the table above show the number of responses. Again, these figures are linked to alternative strategies for these stimulus groups. For example, four-letter bisyllables lead to a high proportion of full fingerspelling or first letter fingerspellings, whereas place-names of three syllables or more, result in a higher proportion of responses in other categories.

It was hypothesised that, if the selection of the letters at syllable-initial points was dictated by the spoken form of the place-name, then there should be fewer responses of this type to stimuli in which there was a consonant cluster producing a single phonetic realisation at the second syllable. The bisyllables with "th", "sh", "ch" and "gh" (eg "Belchamp") were compared with those bisyllables that either had no clusters at this point (eg "Shebfield") or did not have clusters producing a single phonetic realisation (eg "Shebster"). It was further hypothesised that hearing people would be more prone to avoiding this form of abbreviation because they would be more aware of the lack of match between the manual letter and the phonetic realisation of the syllable.

There was a slight tendency for fewer of these responses to occur when the second syllable started with a cluster that was pronounced as one phonetic realisation, and a slightly bigger difference between the two scores in the hearing group than in the deaf group. This may be seen in Table 8.6.

	Deaf	Hearing
Clear split	14%	19%
No clear split	10%	13%

Table 8.6: Percentage of responses taking letters from the start of syllables, for words with clear and unclear divisions at the syllable boundary.

The small difference between the two stimulus groups indicates that the signers are more influenced by the spelling of the word than by its pronunciation. This is even true for hearing people, who might be expected to be more greatly influenced by pronunciation. However, it has already been suggested in section 8.3.1 above (p287), concerning terminal letter retention, that the hearing signers' need to limit the number of manual letters used might override their feelings about splitting a consonant cluster.

If responses using more than two letters are included, however, the picture does become clearer. Hearing people are slightly more likely to select both letters creating the [ʃ], [tʃ], and [θ] phonetic realisations at the second syllable boundary, as part of a longer abbreviation of the word than deaf people are. Twenty-five responses from hearing people involved the retention of both letters at the syllable boundary when other letters were also preserved. There were 18 responses of this type from deaf people.

From these, admittedly limited, results, it may be suggested tentatively that the fingerspelled abbreviations of hearing people are more influenced by the relevance of their knowledge of the pronunciation of the word than the deaf signers, but that this must be weighed against the general tendency of hearing signers to use as few letters as possible in restructured fingerspelled abbreviations.

8.3.3 Retention of First and Second Letters of the English Word

This process of letter selection occurs for a fairly large number of types in the See Hear! corpus. There are 39 types, although very few of them occur with any great frequency. In a corpus of observed data, the low occurrence of any given sign is not necessarily evidence for its low occurrence in the language as a whole. The converse, however, is true. Large numbers of tokens of any given type do suggest the type is in common use in the language and may be seen to be established. By this reasoning, -t-h- is an established abbreviated fingerspelling of this type. It has two manual homonyms THURSDAY and THOUSAND. This is also true for -a-p- ("April") and -e-x- ("example"). All four of these had 10 or more tokens in the corpus.

In the See Hear! and place-names data, this process is most productive as a response to words of two specific categories:
a) words in which the first syllable is two letters long and of the pattern: vowel-consonant,
b) words in which there is an initial consonant cluster creating a single phonetic realisation, i.e. [ʃ], [tʃ], and [θ].

In the See Hear! corpus, 27 of the 39 types found were of a vowel followed by a consonant. Another four types had an initial letter cluster creating a single phonetic realisation eg "ch", "ph" and "th". This left only seven other types, and one of these was a recognised English abbreviation "sq" for "square". This means that 82% of all the types using the first two letters were derived from English words starting with either a vowel followed by a consonant or "ch", "sh" or "th".

This percentage is also found in the place-names experiment. It should be noted that the deaf signers made less use of the first two letters than the hearing signers. Eleven percent of hearing signers' responses fell into this category (category 6) while only 3% of deaf signers' responses did.

Of all the responses that were the first two letters of the English word, the majority were responses to words of these two categories. For the hearing signers, 81% of the responses of the first and second letters were to words starting with either a vowel followed by a consonant or "sh", "ch", "th". For the deaf signers, the figure was 82%.

These results show the influence of one aspect of the English word on the word-formation processes in BSL. There is something about the form of the English word that influences the manual letters chosen for the sign, namely certain letter clusters at the beginning of the English word.

However, there are also influences of BSL here. In the See Hear! corpus, there are 27 types with a vowel followed by a consonant, but most of these

have -a- or -e- as their first letter. There are only two beginning with -i- (-i-d- "identity" and -i-n- "insurance") and two beginning with -o- (-o-p- "operation" and -o-x- "Oxford") and only one beginning with -u- (-u-n- "union"). The hand arrangements for the manual letters -a- and -e- can both be unmarked (when the passive hand is a fist with either the index finger extended for -e- or the thumb extended for -a-), and so are more likely to be used as first letters than -i-, -o-, and -u- which are all marked. (This pattern was also seen in the production of SMLS, discussed in section 9.2.4, p372.)

It is particularly noticeable that the letter pair -e-x- was used as the first two letters for seven different English words ("example", "excuse", "executive", "except", "Exeter", "expect" and "experience"). In these cases, the handshape does not need to change, as only a change in orientation and point of contact distinguishes -e- from -x-. Consequently the manual letter pair -e-x- may be seen as being closer to the BSL ideal of only one parameter change occurring during a sign.

It had been predicted in the place-names study that the deaf signers might be less influenced by the pronunciation of the English words and so be less inclined to produce the first two letters as an abbreviation. This prediction is supported by the responses here. Although the deaf and hearing groups are very similar in giving this response mostly to only words beginning with a vowel-consonant cluster or "sh", "ch", "th" word-types, hearing people do give many more responses of this type generally. Thus, hearing signers gave 52 responses of the first two letters to these word-types, but deaf people gave only 16.

Where the response involved more than two letters, the hearing group still gave more answers using the clusters (26) than the deaf (16). (The same pattern was seen in category 4, in which letters are selected from the start of the word and the start of another syllable).

Deaf people, however, also produced far fewer responses of the first two letters to words beginning with a vowel-consonant cluster than hearing people did. Hearing signers used this strategy in 111 responses to these word-types (29%), but deaf people did in only 37 (10%). This cannot be explained by influence of the words' phonetic features.

Part of the explanation may lie in the fact that shorter words (eg "Embo" or "Iken") are more likely to be spelled fully by the deaf signers than the hearing signers (see section 8.2 above, on p272). Certainly the hearing group gave considerably more abbreviations from three-letter and four-letter English words than the deaf group (45 abbreviations of the vowel-consonant type from three-letter and four-letter words from the hearing group and only six from the deaf group). However, removal of all responses to three-letter and four-letter words from the results still shows that the hearing people were twice as likely as the deaf people to respond to words with initial vowel-consonant clusters with responses using the vowel-consonant cluster (66 responses for the hearing group and 31 for the deaf group).

Words beginning with vowel-consonant clusters may also inspire responses of a fingerspelled abbreviation using the initial vowel-consonant cluster and other letters from that word. There were 28 examples of this in the results from deaf signers and 17 from hearing signers. Even though this brings the

number of responses maintaining the first two letters from words beginning with a vowel-consonant cluster to 65 for the deaf group, it still lags behind the 128 responses from the hearing group.

The question, then, might not be why deaf people use this process so infrequently, but why hearing people make such use of it. Perhaps the hearing signers' behaviour is produced by the principle of economy of effort that might be expected in a second language learner, with an interaction of a need to keep the number of manual letters used to a minimum and the use of the English back-clipping process which takes the first syllable of a word.

8.3.4 Retention of Any Other Combination of Letters

There were other response patterns that suggested several other possible strategies for abbreviations, but which led to abbreviations of more than two letters. These abbreviations would be "unstable" according to Battison's criteria, because they have more than the "ideal" 2 letters that sign language phonology aims for.

Some of these items in the place-names experiment contained groups of letters that had a particular pattern of movement which came from the frequent use of these particular letters. These were the place-name suffixes "ham", "wick", "ing", "ton" and "don". In most of these cases, the vowels are lost and the movement between the consonants becomes stylised. Because they may be seen as single units, the letters in these suffixes are more likely to be retained during an abbreviation. It is commonly claimed that hearing signers use less patterning in their fingerspelling than deaf signers. It may

be no surprise, then, that deaf signers retain these "suffix units" far more often than the hearing signers.

Of all the possible responses to place-names with these suffixes, 26% of those of deaf people retained the suffixes, while only 13% of hearing people's responses did.

Other strategies of signers in the place-names experiment are given in table 8.7 on the following page. Other types of response strategy that are not included in this table, or in any other discussion, did not fall into any recognisable category.

Strategies within strategy 7	Deaf	Hearing
Taking the first two letters from the first syllable and some other letter.	44	53
Taking the first and last letters of the word and letters from the start of another syllable.	28	68
Taking the full first syllable (of more than 2 letters) only.	11	12
Taking the full first syllable (of more than 2 letters) and the first letter of remaining syllables.	4	5
Taking the first letter of the first syllable and the whole of the second syllable.	36	3
Dropping medial vowels from words more than three letters long	36	22
Dropping the terminal vowel and taking the preceding consonant instead.	7	5
Selecting letters from the first syllable only.	2	23

Table 8.7: Number of responses made by deaf and hearing signers for several strategies within strategy 7.

The See Hear! corpus contains 351 signs in which the first syllable (or more than two letters) is fingerspelled fully (accounting for 2% of all the fingerspelling data). There are fingerspellings of the first syllable of 65 English words. As with the SMLS described in more detail in the next chapter, many of these fingerspellings come from specific semantic categories. Of the eleven types with over ten tokens, nine come from the categories of time measurement, such as names of days of the week or months of the year. The two exceptions were -s-e-c- ("secretary") and -g-o-v- ("government"). All the other types had fewer than ten tokens. In some cases this may perhaps be seen as nonce fingerspellings, or less established fingerspellings. However, as mentioned above, this is by no means certain because it is possible that the opportunity to use the lexical item simply did not arise very often.

In section 8.3.1 above (p281), considering the use of first and last letters, the likelihood of the final letter's retention (or deletion) was considered. It is worth considering this in relation to all abbreviations, including those of more than two letters. All responses that included the last letter of the place-name were selected, irrespective of the length of the abbreviation and the last letter was noted. They were then compared to the number of presented stimuli ending with each letter, and the percentage of last letters deleted for each letter of the alphabet was calculated. The results may be seen in Table 8.8. More detailed results may be seen in Appendix VI, in table VI.3.

Percentage deleted	Letter deleted
>90%	e a o
>80%	r d s n
>70%	b u y t g k l h
>60%	p w x
<50%	f z m
n.a.	c i j q v

Table 8.8: Percentage deletion of the last letter in any abbreviation

Again, it may be seen that the vowels are very prone to deletion during the processes of abbreviation and restructuring. Only -u- is retained more than 10% of the time. This, however, may not be a representative statistic, as there was only one place-name ending with "u" ("Dolgellau").

Again, as with the earlier data, the manual letters with hand-arrangements involving the touch of fingertips are generally less likely to be retained.

Once again, the symmetrical nature of the handshapes for each letter has some bearing on the likelihood that the letter will be retained. Here, there are 21 letters that may be considered (as "c", "i", "j", "q" and "v" never appear in word-final position in this corpus). Out of the top ten letters most likely to be retained during at least the first stages of lexicalisation, seven are symmetrical hand-arrangements (exceptions being -k-,-l- and -p-). Out of the bottom ten, eight are non-symmetrical handshapes (exceptions being -s- and

-b-, but -s-, at least, may be explained by the fingertip or interlocking hand-arrangements mentioned above in section 8.3.1, p286). The non-symmetrical hand-arrangement of -t- is the mid-point.

The mean percentage retention rate for non-symmetrical handshapes is 18.1, while the mean percentage retention rate for symmetrical handshapes is 36.7.

Again, this is evidence that BSL rules of word-formation are an important factor in the restructuring of fingerspellings. According to Battison, and Kyle & Woll (1985) hand-arrangements using symmetrical handshapes form more stable signs than those using asymmetrical handshapes.

This study of the restructuring of fingerspelling in BSL has shown that many factors influence the form of the fingerspelling. The forces producing different fingerspelled signs have been shown to come from BSL and English, as the hand-arrangements of the manual letters, and the orthography of the English words interact. The fingerspelling skill of the signers has also been shown to be an important factor.

The above data has all been linked to Battison's (1978) claim that deletion is a major feature of the restructuring of a fingerspelling in a sign language. Some other "restructuring" processes that may be seen in the use of fingerspellings in BSL will now be discussed.

8.4 MOVEMENT OF A FINGERSPELLING THROUGH SIGNING SPACE

The way that signs move through space in order to show morphological information in verbs has already been discussed in section 4.7.3, p150. There it was remarked that fingerspellings very rarely move through space. Such movement, however is only rare, not non-existent. It is also possible for whole fingerspellings to be placed in different areas of the signing space, for reasons of placement. Here, both these departures from the normal signing space for fingerspelling will be discussed.

8.4.1 Movement of a Fingerspelled Verb through Signing Space

In Chapter 4, in the discussion of verb loans in section 4.7.3 (p153), it was claimed that fingerspellings cannot move through syntactic space. The fact that many BSL verbs show agreement through movement was given as one major reason why there are no fully fingerspelled agreement verbs in BSL.

Study 5 confirmed that fingerspellings cannot move through signing space as part of the agreement of verbs. The average rating for all the fingerspellings moving through signing space was 2.8 on a scale where 3 was "totally unacceptable". For many of the items, all signers responded with a rating of 3, so that they were rejected by everyone as unacceptable. This compared with an average rating of 1.5 for non-derived sign synonyms moving the same way through the signing space ($t = 30.2$, $df = 899$, $p < 0.001$).

Evidence for the claim that the *movement* makes the fingerspellings particularly unacceptable comes from comparing these sentences with those using a full fingerspelling articulated in neutral space, followed by an index to demonstrate the verb agreement. The average rating for fingerspellings with a moving index was lower than the rating seen for those which moved themselves (2.4 compared to 2.8; $t = 9.3$, $df = 819$, $p<0.001$). Lower ratings were for items considered more acceptable, so items with a moving index were considered more acceptable than items that moved.

It was also mentioned in section 4.7.3 (p155) that SMLS were more able to take on BSL verb morphology than full fingerspellings because they could move unimpeded through the signing space. Study 5 provides data to support this claim. The average rating for SMLS moving through syntactic space was significantly lower than that for full fingerspellings (2.15, compared to 2.8; $t = 13.82$, $df = 959$, $p <0.001$), showing that the signers were more inclined to accept moving SMLS than moving fingerspellings.

8.4.2 Location of Nouns within the Signing Space.

Verb morphology in BSL is shown by movement through signing space. Noun morphology is shown by the location of the sign in signing space.

Location of manual letters and fingerspelling may be seen in two ways: the location of the manual letters in the signing area, and the location of the active hand with respect to the passive hand which may be seen as functioning as a manual tab within the hand-arrangement. Both these points

will be considered. The data for this section comes from Study 5, which investigated morphological incorporation into fingerspellings and SMLS.

Location Change within the Signing Space

Several informants in Study 3 remarked that BSL fingerspelled words may be placed anywhere within the signer's signing space, according to the placement rules of BSL for either topographical space or syntactic space. An example of movement of fingerspelling according to rules of topographic placement given by a deaf informant was the sentence "We drove from the cafe to the hotel". The informant fingerspelled -c-a-f-e- at one location, and -h-o-t-e-l- at another, using the sign DRIVE between the two. A video tape of an older Scottish deaf signer telling a story shows him fingerspelling -v-e-n-t- at shoulder height, where the vent was located in his story.

This far less common in ASL because of the strict constraints on fingerspelling location. In ASL the use of a locative index to locate each referent after the fingerspelling has taken place is more likely.

Study 5 aimed to determine the extent to which this placement of fingerspellings was acceptable.

In general, the signers in Study 5 did not rate highly those sentences using fingerspellings placed in parts of the signing space. The average response for these was 2.9, on a scale in which 3 was totally unacceptable. The average response to the non-derived signs in the same sentences was 2.6. These two scores were significantly different ($t = 4.29$, $df = 319$, $p<0.001$).

Neither of these forms of signing is very acceptable. On the whole, signers rated the use of the sign in neutral space coupled with a locative index in the relevant topographical space as more acceptable than the use of the sign placed in the topographical space. The average rating for any noun placed meaningfully in the signing space was 2.7. The average rating for any noun articulated in neutral space and located using a locative index was 1.6. This is a significant difference ($t = 23.6$, $df = 979$, $p<0.001$).

The responses in this study show that placing a fingerspelling in topographical space is not commonly acceptable to the signers who took part in the study. It should be noted, however, that the signers were all aged under 50, and the three consultants who mentioned placing fingerspelled words in space all mentioned it as a feature of older, particularly Scottish, signers. Further research, using judgements by older deaf signers would help resolve this apparent discrepancy.

Although it is physically possible for hands to move through signing space while articulating letters from the manual alphabet, it is not easy, and such movement is rare in BSL. It does seem possible, though, for two manual letters to be fingerspelled as hands move across space.

Lexicalised function words which may move through space are -t-o- and -o-r-. For example, a person or place may be assigned a part of the signing space and -t-o- may be fingerspelled with the hands moving towards this area of the signing space. An example of this was seen from an elderly signer within the See Hear! corpus. As these function words are both only two letters long it is possible to move them by articulating one letter at the start position and

holding that hand-arrangement as the hands move through the signing space, and then articulating the second letter at the finish.

The same surface form can sometimes be seen when selected letters from a word are being fingerspelled as a restructured abbreviation. Two informants in the place-names study spontaneously remarked that if they take letters from the start of each syllable of a bisyllabic word, the second letter handshape is articulated to the right of the first letter. This is because in the written form, the second letter is to the right of the first. An example of this was in the production of the fingerspelled letter -f-k- to refer to the town of "Falkirk". The -k- was articulated to the right of the -f-.

Again, this demonstrates the way that BSL processes are added to the citation form of the fully fingerspelled word, although this instance is based on the conventions of English writing.

Location Change due to Omission of the Passive Hand

It is possible to view the passive hand in the hand-arrangement of any manual letter as a location of sorts. Restructured fingerspelled signs may omit the passive hand. An alternative tab may be used, or the manual letter may simply be made using the active hand in neutral space.

It is considerably more common than descriptions would imply for signers to omit the use of the passive hand when fingerspelling. This may happen, for example, when a signer is driving, smoking or drinking. Where there is considerable redundancy, short fingerspellings (such as EGG, IF and FOR), days of the week or names of people may be articulated using only the active

hand. Deaf informants claim that this use of only one hand cannot be extensive but is fully acceptable for the occasional instance. Very preliminary evidence from a short study showed that signers are fully capable of understanding isolated words in a word-list, fingerspelled using only the active hand.

It is also possible for an established restructured fingerspelling to be a one-handed sign. This may be seen in the restructured function words FOR, OR and IF.

FOR may be a one-handed sign, even when two hands are free, using the active hand handshapes for the letters -f- and -r-, but with the supination that accompanies the transition between the -f- and the -r-. The movement of the letter handshape carries further information about the letters omitted. (See video reference 8.1.)

OR uses the active hand bending from an extended index finger (-o-) with supination as the handshape changes to that of the -r- hand-arrangement. (See video reference 8.2.)

In IF, the active 'G' hand has the palm facing up or towards the body (-i-) and this pronates to become palm down with two fingers extended into an 'H' hand of the -f-. (See video reference 8.3.)

In section 9.4 (p395), SMLS using alternative tabs will be discussed. However, it is also possible for signers to fingerspell using other parts of the body apart from the manual tab of the passive hand. These fingerspellings

are all playful, and are often used by children. They are not part of the formal registers of BSL but are found in word-games. Three such fingerspellings are -m-a-d-, -d-e-a-f- and -m-o-r-o-n-.

In -m-a-d-, the active hand of the -m- is articulated on the chin, the thumb on the nose represents the passive hand of the -a- and the active hand of the -d- is articulated with the palm towards the signer's face, using the nose and forehead as the tab.

In -d-e-a-f-, the active hand of the -d- is articulated with the palm towards the signer's face, using the chin and mouth as the tab, the index finger on the ipsilateral cheek represents the passive hand of the -e-, the thumb representing the passive hand of the -a- is placed slightly higher up the cheek , and the active hand of the -f- is articulated with the ear as the tab. This last hand-arrangement is a pun on the sign DEAF which also has the 'H' hand located at the ear.

In -m-o-r-o-n-, the active hand of the manual letter -m- is made on the mouth, the .O. (which is the "alternative" manual letter using the 'O' handshape) is made on the nose, the active hand of the -r- is articulated on the forehead, the second .O. on the nose again, and the active hand of the manual letter -n- is articulated on the mouth again. In a version of this sign used in Northern Ireland, the "r" may be represented using the 'R' hand of the .r. manual letter configuration from the one-handed alphabet. (See video reference 8.4.)

These restructurings, in which the fingerspellings are articulated in locations other than a neutral position in space, are all further examples of the way in which fingerspellings may be restructured according to BSL processes.

8.5 CHANGE IN HANDSHAPE

In ASL many of the handshapes occurring in the manual alphabet are not found commonly as sign handshapes (eg the manual letter .r.). As a result, restructuring of fingerspelling loans often involves changing a letter hand-configuration to one which occurs in more ASL signs. In BSL many of the handshapes in the manual alphabet also commonly occur as handshapes in non-fingerspelled signs, so the processes of lexicalisation of fingerspellings could be different in the two languages. However, it is possible that precise, more marked handshapes may become neutralised and less marked. The other possibility is that the handshapes assimilate with preceding or succeeding parts of the sign or fingerspelling.

Battison makes an observation that implies that he too thinks the different forms of the two manual alphabets could influence the lexicalisation process. He mentions a form of an American loan sign meaning "No Good", which he claims is realised by the unmodified -n- and -g- from the British two-handed manual alphabet. He says that the "loan has not undergone any restructuring. The reason is evident - there is no phonological conflict involved with making the British letters N and G, since <u>they already have the structure of ASL signs</u>." (1978:139,140, Author's emphasis.)

His reasoning about the lack of need for restructuring seems plausible, although his identification of these handshapes as British is probably mistaken. It is more likely that the handshapes come from the American two-handed alphabet which was in widespread use within the deaf community until about 40 years ago. This two-handed manual alphabet is very similar (although not identical) to the British manual alphabet, and the letter handshapes for "n" and "g" are the same in both alphabets (see section 2.8.2, p81). There is no British sign NO GOOD using the letters -n-g-, so there is no reason to assume it was borrowed from Britain. Whatever their origin, the handshapes making up the American sign NO GOOD are not in phonological conflict with ASL signs and so do not need to undergo any further changes.

It has already been observed in section 4.1.1 (on p118) that loans of lexicalised fingerspellings from foreign sign languages may contain handshapes alien to BSL phonology, particularly .k. and .e. (eg OK and EUROPE) and these signs may undergo shifts in handshape. In the changes, the signs lose any link with the foreign manual alphabet and may become unmarked BSL handshapes. However, this is not necessary in the restructuring of a fingerspelling using the BSL manual alphabet because all the handshapes and hand-arrangements are part of BSL phonology.

Although the handshapes in BSL manual letters are part of BSL phonology, handshapes and hand-arrangements do change in some lexicalised fingerspellings. They do not seem to change to become more like other BSL handshapes but rather because of coarticulation. Parallel changes also

occur in spoken languages, for example in the use of "dunno" in casual English, in place of the more formal "don't know".

In rapid fingerspelling, many letters are "incorrectly" formed, in as much as they are incomplete. For example, the passive hand of an -f- may be a 'B' hand rather than the citation form 'H' hand. This may be because the "incorrect" handshape is unmarked, in contrast to the marked handshape of the citation form, or it may be because surrounding letters involve the use of the substituting handshape. More likely, the two causes interact so that unmarked handshapes easily develop when surrounding letters influence each other.

These changes in the handshapes of letters during fingerspelling are an integral part of fingerspelling within BSL. Wilcox's observations of fingerspelling in ASL (1988) led him to conclude that the citation forms of letter handshapes are of surprisingly little relevance in conversational fingerspelling. The effects of coarticulation are vital for the perception of fingerspelling. Thus, any changes in handshape that may occur during the lexicalisation of fingerspellings may not be due to the processes of restructuring as part of lexicalisation, but simply to the way that fingerspelling is executed in conversational signing.

Just as there may be several allophones of a phoneme in spoken languages, there are several hand-arrangements of many manual letters, and the letters occurring during a fingerspelling may often differ from those given as citation forms in fingerspelling charts. These alternative forms will be referred to as allo-forms here. The term has been chosen because there is no other

linguistic term in existence that can conveniently be applied. The terms "allophone", "allomorph" and "allograph" already have other specific uses, none of which can be applied appropriately here.

The different allo-forms are usually the result of coarticulation. For example, the passive 'B' hand of letters such as -t-, -m-, -n- and -v- may have one or more fingers bent forward either in anticipation of a vowel or as a relic of a preceding vowel. In some cases, the bent finger acts as the articulation of that vowel occurring simultaneously with the consonant. The active hand of the letter -s- may have the little and index fingers extended simultaneously as an anticipation of a subsequent vowel, for example in fingerspelling -s-e-x- or -s-i-t-.

Some manual letters have recognised alternative forms, in which the particular citation form depends on the surrounding letters. The Dictionary of British Sign Language/English (1992) gives two forms for -a-, three for -b-, two for -c-, two for -d-, three for -e-, two for -k-, three for -m-, two for -n-, two for -p-, three for -s-, two for -u- and two for -x-.

With -d- , -p- and -k-, the passive hand may be either the spread 'B' hand or the 'G' hand. If the following letter involves the extended finger of that passive hand (other than the index finger of the passive hand extended in the 'G' handshape), then it will be a spread 'B' hand. If not, then it may be a 'G' hand. The letter -b- may either have all the fingers closed in an 'o' hand or only the thumb and index fingers touching, and this may be for one hand or both. The last two allo-forms allow rapid access to other fingers for subsequent manual letters, while the first allo-form (the common citation

form) is more common at the end of a word where there is no immediate use of the extended fingers in prospect or for deliberate clear fingerspelling in which each individual letter is important.

The handshapes within some lexicalised function words do change. In some instances of IF there is anticipatory coarticulation as the -i- is made with the movement, orientation and location of the citation form of -i- but with the -f- handshape. That is, the middle finger of the active 'H' hand touches the middle finger of the passive hand which is also an 'H' hand. In this sign, the orientation also changes, with the active hand touching the passive hand while the active hand is palm up.

The lexicalised loan sign -n-c- (NEWCASTLE) may be made with the index and middle fingers curved into the 'C' shape, instead of only the index finger, which is the usual, citation form of the manual letter -c-. This use of the two fingers is a perseveration of the active handshape from the manual letter -n-.

Some lexicalised content signs lose the identity of certain letter handshapes completely but retain a movement in a similar location. This may occur for signs that are formed in various ways: through part loan translation and part manual letter; through letter selection; and through use of English abbreviation or acronym. The examples of such coarticulatory changes in the handshape were all given by the consultants interviewed in Study 3.

WEEKEND is often signed as -w-END, using part manual letter and part loan-translation, but it is possible for the -w- to be replaced by two 'B' hands placed palm to palm. (See video reference 8.5.)

AUGUST is often signed as the shortened -a-u-g- but may be reduced to an active 'B' hand brushing the passive 'A' fist before forming a fist itself to make -g-, or the active 'B' hand brushing the passive 'B' hand before the manual letter -g- is formed.

In the sign GLASGOW, the letters -g- and -w- are selected, but the -w- becomes one 'B' hand wrapped around the remaining (passive) fist from -g-. (This wrapping of the hands in -w- has also seen in a Scottish signer's sign THREE WEEKS in the See Hear! corpus). This form of the sign is so common that it s the citation form of the sign, and the fingerspelling -g-w- is unusual (although acceptable).

The citation form of -l-b- (POUNDS) is derived from the English abbreviation "lb". In the coarticulated form, the fingerspelling may change so that the -l- is replaced by an active 'B' hand stroking the palm of the passive 'B' hand before the -b- handshape is made (see video reference 8.6). It is also possible to incorporate number into the first part of the sign -l-b-. In citation form "three pounds" would be signed THREE -l-b-. In the modified form, the number handshape is retained as the active hand strokes the palm in the movement that would indicate -l-, before articulating the -b-.

In some forms of the lexicalised loan sign -m-c- (MANCHESTER), the handshape of the active hand is neutralised to a 'B' hand for both manual letters. (See video reference 8.7.)

It should be emphasised that these signs with the changed handshapes are variants of the same sign and products of coarticulation. They are not considered more or less BSL than the signs using clearly identifiable letters from the manual alphabet. However, the changes in handshape again show the BSL processes that can be involved in the restructuring of a fingerspelling.

8.6 CHANGE IN ORIENTATION

ASL fingerspelling is highly constrained in the permitted orientation of letter hand-configurations. There are some minimal pairs which are distinguished only by orientation, such as .g. and .q., .h. and .u. and .k. and .p..

In BSL there is much more variation in the orientation of the hands relative to the body, although the orientation of the hands to each other in the hand-arrangement is more constrained.

For the majority of letters, the citation form of the letter depicts the active hand as palm down and the passive hand as palm up (-a-, -e-, -i-, -o-, -u-, -h-, -j-, -l-, -m-, -n-, -r-, -s-, and -v-). Another group of letters involves the palms of both hands facing the body (-b-, -g-, -w-, and -x-). Several more letters involve the palms facing each other (-d-, -p-, and in the exceptional case of -c- where the palm faces sideways). In -k-, -q-, -t- and -z- the active palm faces down and the passive palm faces sideways. In -y- the active

hand is palm down and the passive palm faces away from the body, angled downwards. Only -f- involves both palms facing down.

In practice, however, the orientation of the palms towards the body is variable, and may change for various reasons including making the hands more visible for the people watching. Orientation may also change if the fingerspelled word is being placed according to BSL placement.

One complaint levelled at the British manual alphabet is that letters articulated upon the palm of a passive 'B' hand are impossible to distinguish from many angles (eg Kitto, 1845). English words which are unfamiliar to the signer's audience may be fingerspelled with the hands at the level of the upper chest (nearer to the viewer's centre of gaze and nearer the mouth to match the fingerspelling with the lip-pattern of the English word) with the palm of the passive hand facing away from the body or to the left or right. This is particularly important for signing on television when viewers can only see the signer from the camera-angle they receive, or in a lecture situation. Other fingerspellings do not need to be articulated in this prominent position if the addressee is able to extract the information from the overall movement envelope rather than the individual letters.

A change in palm orientation in a lexicalised sign may be seen in -m-f- (PARENTS). The active hand of the -m- may be palm up (see video reference 8.8). (Another possible alteration is that the -f- reverses so that the citation form upper hand becomes the lower hand).

Again, this brief section has demonstrated that BSL fingerspellings may be restructured to create signs that are more than simply a concatenation of the citation forms of manual letters. Importantly, these changes are not restricted to those fingerspellings that are accepted as established loans in BSL. These processes may affect any use of fingerspelling.

8.7 SEMANTIC CHANGE

A fingerspelling of an English word can be used on any occasion when that English word is suitable. Some restructured, established fingerspellings may only be used in given contexts.

One of the possible characteristics of a restructured fingerspelling given by Battison (1978) is that the meaning of the new sign can be more specific than the English fingerspelling. That is, the lexicalised fingerspelling would not always be an exact BSL equivalent of the borrowed English word. This semantic restriction is common in borrowing in other languages too. The Japanese adjectival loan "buruu-na" (rephonologised from "blue") is used to mean "a blue mood" (Akamatsu, personal communication, June, 1992).

This semantic restriction is also seen in some lexicalised BSL fingerspellings. The lexicalised loan WHAT has undergone changes including deletion of medial letters and change in handshape and is only used as an expression of shock and disbelief. An English equivalent would be "What?!" or maybe "What the hell?!". (See video reference 8.9.)

The lexicalised loan -e-x- , glossed as EXECUTIVE is only used to mean an executive committee, not a member of that committee. It is possible to use this sign to refer to the executive committee of the BDA, but not to talk about a business executive.

The restructured loan COOL has undergone deletion of medial letters, and has become one-handed with the -l- losing its passive hand. It is made with an extra movement, as the -l- drops down on the contralateral side from the -c-, and is only used to mean keeping very cool and calm in the presence of someone losing their temper.

There are two fingerspellings derived from "do" and glossed as DO. The first, -d-o- is used in the context of "What shall I do?". The second, -d- is used to mean performing an action only, and might be used in the context of "I do that often" or "I have been doing that for ages". Neither is used by BSL signers as a dummy verb in a question, as "do" is in English questions like "Do you like it?".

In some cases the first letter can be used for given contexts and not in others. The English word "minutes" has a non-derived sign MINUTES except when preceded by a numeral eg FIVE -m-. This is also true for "miles" for some signers. The fingerspelling -f-o-r- cannot be used in all contexts in which "for" occurs in English. For example TEACHER f-o-r DEAF is acceptable, but *WHAT f-o-r-? is not. WHAT f-o-r? would be seen as signed English, and WHAT-FOR? as acceptable BSL.

In other cases the letter handshape no longer bears any obvious relation to the English word that would translate it. PARENTS is articulated using the handshapes -m- and -f-, although the accompanying lip-pattern is often "parents". ASK is clearly linked to the old -q- from QUESTION. The sign glossed as DADDY is also made with the manual letter -f-, despite the fact that the lip pattern and the source words do not start with "f". Another possible example, is the sign GENERATIONS is made with the -f- handshape. It is thought that this -f- was originally related to FAMILY. However, this may be a false etymology, and there is no written evidence of the sign's history.

Lexicalised fingerspellings may only function in one grammatical class, even if the English source word functions in more than one class. For example, for some signers, the sign -a-a-, derived from the English word "answer" may only be used as a noun by some signers, not as a verb. The loan fingerspelling -e-x-, glossed as EXCUSE-ME is only used as an interjection. It does not function as a verb-phrase, as it might in English, and could not be used in phrases meaning , eg "he excused me" or "I am always excusing her".

8.8 MORPHOLOGICAL INVOLVEMENT

Section 8.4.2 (p304) has already described the effect of changing location to add extra morphological information. Considerable extra morphological information can be added to manual letters within BSL, but this is usually

through the addition of movement. Because addition of movement is physically difficult in BSL fingerspelling, it usually occurs with SMLS. Consequently, discussion of additional morphological information will be saved until section 9.5 (p399), concerned with SMLS.

8.9 OTHER CHANGES IN FINGERSPELLING

Battison also includes reduplication and addition of a second hand as evidence of restructuring. Reduplication (or repetition) is an integral part of morphological involvement in SMLS and will be discussed in Chapter 9, especially in section 9.2.2, p342. The addition of a second hand may not be so relevant to BSL as most letters are two-handed anyway. Section 8.4.2 (p307) has shown that the reverse process can occur in BSL in which lexicalised fingerspellings can become one-handed through restructuring.

8.10 MANUAL LETTERS WITH NON-DERIVED SIGNS

Manual letters also occur in conjunction with other sign morphemes in BSL. There are several possible ways of combining manual letters and other sign morphemes.

Sometimes the manual letter is the initial letter of the English word, as a point of reference to the English word and the accompanying sign is a sign

referring to the entire word (an example from the See Hear! corpus is -c-CONVOY for "convoy").

On other occasions, the first manual letter of an English word marks a specific word within a semantic group, while the sign that accompanies it has a more general meaning (eg -p-UNIVERSITY for "polytechnic"). This process is used extensively in BSL. In ASL, and in some other sign languages using one-handed manual alphabets, established signs are made with specific letter handshapes imposed upon the existing movements and locations. This latter process is termed "initialisation". It will be demonstrated in section 9.3.3 (p394) that the process of using a single manual letter in conjunction with a non-derived near-synonym is generally preferred over initialisation in BSL, and that the reason for these different strategies is the form of the different manual alphabets.

On other occasions, the fingerspelling reflects the first part of the English word and the sign reflects the second part. This is part of a process of loan translation. It is particularly productive in place-names (eg -w-MOUTH for the town "Weymouth"). This mixture of sign and manual alphabet can be divided into four different observed categories:

a) 1st part uses one or more manual letters, 2nd part uses a sign.
b) 1st part uses a sign, 2nd part uses one or more manual letters.
c) 1st part uses one or more manual letters, 2nd part uses a sign and 3rd part uses one or more manual letters.
d) 1st part uses a sign, 2nd part uses one or more manual letters and 3rd part uses a sign.

Instances of all these occurred in both the See Hear! and place-names data sets. Categories c) and d), however, were very rare.

In the place-names experiment, there are interesting differences between the deaf and hearing groups, which may be traced to the difference in language skills in the two groups. The deaf signers were far more likely to include some form of sign unrelated to fingerspelling than the hearing signers were.

There are very productive BSL processes that will allow the creation of signs unrelated to fingerspelling. Although the signers were asked to offer responses related to fingerspelling, they were told that if a fingerspelling felt unnatural, and a sign unrelated to fingerspelling felt the right response, then they should give it. Almost 3% of all the responses of the hearing signers, and 5% of all those of the deaf signers, were signs totally unrelated to fingerspelling

However, it was a very common process, particularly amongst the deaf signers, to produce multimorphemic responses made up of both manual letters and non-derived signs. The deaf signers here gave a far greater overall percentage of responses involving signs than the hearing signers did (20% against 6%.)

One possible explanation for this could be that the hearing signers do not have full control of the rules for sign formation from English words, while deaf people are more aware of the rules of sign creation. Consequently, the hearing signers are more wary than deaf people are of "creating" nonce

signs, especially in the light of the frequent criticism that hearing people often make up inappropriate new signs when they do not know of an existing sign. Goodstein (1990), for example, remarks that ASL signers will fingerspell many words, but that SEE requires signers to have a sign for everything, leading to inappropriate signs, in situations in which ASL would use fingerspelling. He provides an example of a teacher who made up her own sign to mean "diet", rather than use the common fingerspelling .d.i.e.t.. Hearing signers may take this sort of criticism seriously and not try to create new signs. Deaf signers, more skilled in signing and with greater awareness of what is appropriate in BSL, will know what is acceptable in a new sign, and so might be expected to use signs unrelated to fingerspelling more often.

The hearing signers may have tried at all costs to provide some sort of fingerspelling for as many items as possible, even on occasions for which the fingerspelling may not have come completely naturally. The deaf signers may have had a stronger feeling for occasions upon which the fingerspelling felt unnatural and given a sign instead.

Another possibility that must be considered is that this result is partly an artefact of the interview situation which led the hearing signers think more in English than BSL. As they had a list of written English words, and were being asked, in English, to fingerspell (a task that is based on English orthography), it was possible for them to provide a fingerspelling abbreviation while thinking in English (even while trying to consider what BSL processes they might use for the task), whereas the use of BSL sign forms would have involved a switch in languages. As there need not be any surface difference between a fingerspelling produced from English and one produced through

BSL, the thought processes involved cannot be discerned. However, the very fact that so few signs were produced may itself be evidence that the hearing signers were being heavily influenced by their use of English.

Even if the signers had not been responding to word lists, there is a strong possibility that the hearing signers would have perceived the place name as part of English and so used fingerspelling abbreviations based on the English word. Deaf signers, less likely to be thinking in English while signing, might be less likely to perceive the place-name as English, and so be more likely to use a loan translation or another sign.

An important factor in the use of place-names, whether or not they are based on fingerspelling is the use of a locative index with the sign. This locative index may be used in two ways, either geographically or within the topographical signing space. Signers may point in the direction of a real geographical location if the place is nearby. If the place is not local, the indexical reference is in a vertical plane corresponding to a map of the British Isles (for example, pointing higher in the vertical plane if the town is in the north, lower if it is in the south, and to the left or right if it is to the west or east). It is also important to note that the use of the locative index alone is often adequate reference, once the identity of the place has been established.

For the purposes of the analysis here, the use of this locative index was not counted as part of the sign, for example, "-a-a- (index)" as a response to "Aberdeen" was classified as a single manual letter response, rather than one using a sign, because it was felt that this marker, while important to the

idea that the referent was a place or town, did not add extra information about the identity of the town itself. However, the use of the two parts of the sign should not be ignored.

All responses in the place-names experiment that included some non-derived sign were noted.

Of all these signs, there were several different strategies. The percentage of all responses using a sign unrelated to the manual alphabet in each category were calculated.

The responses given are shown in Table 8.9.

Strategy	Deaf (out of 380 responses)	Hearing (out of 112 responses)
Using the sign FINGERSPELLING	8%	9%
Using a sign only	26%	44%
Manual letter(s) and sign	36%	28%
Sign and manual letter(s)	26%	20%
Manual letter(s), sign, manual letter(s)	4%	0%
Sign, manual letter(s) sign	1%	0%

Table 8.9: Percentage of different combinations of sign and manual letters for all responses that used some form of non-derived sign.

Use of a sign instead of a fingerspelling (sub-category b) may have been:

1) a recognised sign unrelated to fingerspelling and unrelated to the English word (eg two hands, with thumb, index and middle fingers open and spread, palm down, circling at waist height for ABERYSTWYTH).
2) an exact calque of the English word (eg the two signs glossed as STONE and HAVEN for Stonehaven).
3) an approximate loan translation based on the phonetic realisation of the word (eg KEY for Kea) or its spelling (eg EWE for Ewell).

This process of using a sign only was much the preferred one for the hearing people, accounting for nearly half of the responses involving a non-derived sign. For the deaf informants, it only accounted for a quarter.

Sub-categories C and D both involved the use of the manual alphabet and a non-derived sign. In sub-category C, the first part used the manual alphabet, and the second part used a non-derived sign. In sub-category D, the first part used a non-derived sign, and the second part used the manual alphabet. For both the hearing and deaf groups, more responses involved using the manual alphabet for the first part, than in the second part (overall, 32% for manual letters followed by a non-derived sign, and 23% for a non-derived sign followed by manual letters).

Within sub-category C, (manual letter(s), followed by a non-derived sign) the distinction was made between two further types of responses. In one group, there was some sort of morphemic analysis, in which the manual letter(s) represented the first part of the word, and there was a non-derived sign for the second part (eg -s-FIELD in response to "Shebfield"). In the other group, the manual letter was the first letter of the English word, and the non-derived

sign could be seen as a translation of the whole English word (eg -b- BALL MORE in response to "Ballimore").

The first group was far larger, for both deaf and hearing signers (with 90% of sub-category C being of the first type for deaf signers and 84% for hearing signers). Only 9% of the deaf signers' responses and 16% of the hearing signers' responses used the second process of the initial letter and then a sign translation.

It was also more common for signers to use a manual letter followed by a non-derived sign, than it was for them to use a non-derived sign followed by a manual letter. The explanation for this pattern is not clear. One possibility investigated was that it is an artefact of the materials used, and that the morphemes were more meaningful in the second parts of the place-names. If the morphemes in the second parts of the place-names were more meaningful in English than the morphemes in the first parts, signers would have a greater opportunity to translate these into BSL without using the manual alphabet. For example, there is no English word "Sheb", but there is a word "Field", so that "Shebfield" could only be produced with its second syllable in loan translation, not the first (ie -s-FIELD, but not *SHEB-f-).

However, it is not immediately obvious from looking at the place-names that this is so, particularly as so many of the second parts of place-names contain suffixes such as "ham", "wick", "don" and "ton", all of which were fingerspelled if they were included in the responses. Also, for many of the placenames on the list, neither part of the word seemed readily analysable (eg "Smeathorpe"). For others, translations were made into BSL that might

not be immediately expected from the English word (eg KNOW from "Knolton" and -h-BARROW from "Holberrow").

It may be that BSL restructuring processes simply favour this pattern of producing a manual letter followed by a sign. It has already been mentioned in section 8.10 (p322) that the use of a manual letter followed by a non-derived near synonym is a common process of sign-formation. Although the morphology of the signs produced in this response strategy is different here, the form is the same as these first letter signs described in section 9.3.3 (p394). In both cases a manual letter is followed by a non-derived sign (eg -p-UNIVERSITY from "polytechnic" or -s-FIELD from "Shebfield"). If signers accept this form as a regularly occurring part of BSL then it might be expected to occur in other situations. For whatever reason, the pattern of using a manual letter followed by a non-derived sign is much more common than that of a non-derived sign followed by a manual letter.

8.11 SUMMARY

This section has considered the processes of restructuring that may occur when a fingerspelling is used as part of BSL. There is strong evidence, in support of Battison's proposals, that BSL processes of word-formation operate on these fingerspellings, with the result that fingerspellings are no longer simply representations of an English word. These processes operate in conjunction with other factors such as the form of the English word and the signer's skill and attitude to BSL and English.

Evidence that a fingerspelling has undergone any of these restructurings may be indicative of the lexicalisation. Such features, however, are by themselves neither necessary nor sufficient. They are also inadequate for distinguishing between established lexicalisations and nonce signs. For this, there need to be other considerations based on sociolinguistic parameters.

The next chapter will consider the influence that BSL word-formation processes and the structure of the English word have on the formation of single manual letter signs (SMLS).

Chapter 9

SINGLE MANUAL LETTER SIGNS

9.0 INTRODUCTION

It was demonstrated in Chapter 4 that the manual alphabet is used to enable BSL to borrow freely from English without having to resort to full loan translations.

The previous chapter discussed the changes that may occur in restructuring fingerspellings.

Another possibility is that only one manual letter is used to represent the first letter of the English word, and that this manual letter is the only hand-arrangement in the sign. Here, this is called a single manual letter sign (SMLS). This chapter will discuss the formation and use of SMLS. It will consider the instances in which they are used, and the processes operating upon their formation. The length of the English word and the letters in it may have some influence upon the form, but the form of the English word will interact with BSL phonology and morphology to create the ultimate form according to BSL word-formation rules.

In some cases, a SMLS sign can perform some linguistic functions and incorporate some morphology that a non-derived sign synonym cannot. It will be argued that this is because the form of the two signs is different.

As in the case of fingerspelling, the use of SMLS in ASL seems to engender different processes from those in BSL, creating different forms. This is probably because of differences between the one-handed and two-handed manual letters. This may be seen in more detail in sections 9.1.1 (p334) and 9.2.4 (p377).

It has already been claimed in section 1.6.2 (p32) that use of the manual alphabet in BSL to create SMLS may be divided into several categories:

i) manual letter only (which may be established, or a nonce occurrence)
ii) manual letter with a movement which has no separate meaning in the sign language.
iii) manual letter combined with a sign radical
iv) sign radical with manual letter handshape
v) two-handed manual letters made with only one hand

The process by which single manual letter signs are created is different from the processes involved in the creation of other signs using abbreviated fingerspellings. These processes will be considered here.

Change in movement and location will be considered in relation to SMLS. A change in location is only partially separable from changes in movement, so the two changes will be considered together here. Battison (1978) observed that "many additions or changes in movement and orientation are naturally linked to changes in location, since movements are necessary to go from point A to point

B, or from orientation A to orientation B" (1978:199). Change in location occurring for other reasons will also be considered.

The discussion of addition of movement will consider the influences of the form of the English word, and the influences of BSL phonology and morphology upon the ultimate form of the SMLS.

9.1 SINGLE MANUAL LETTER SIGNS IN BSL - AN OVERVIEW

The first important, albeit seemingly trivial, point to make is that single manual letter signs almost always take the *first* letter from the English word. There may be rare exceptions, for example AUGUST may be articulated using a -g- handshape. In the place-names study, 11 responses (out of 3719) omitted the first letter. In five of these cases, the initial letter was a vowel (Battison claims that vowels are more prone to deletion than their surrounding consonants), and in two cases (both offered by hearing signers) the first letter was "silent" ("w" of "Wrantage" and "k" of "Knipton").

This creation of signs consisting of the letter handshape corresponding to the first letter of an English word has been shown in Study 4 to be one of the most productive uses of the manual alphabet as a lexical resource for BSL. The BSL/English dictionary also reinforces this with 53 entries that are SMLS, and only one entry that is an abbreviation (see Appendix V). Although only one manual letter is used, the manual letter may be articulated more than once in the

sign. The factors determining the number of repetitions may come from English or BSL.

The information given below comes from all the sources described in Chapter 6. Data for an insight into the patterns of occurrence of these SMLS comes from four sources here. The See Hear! corpus (Study 2) provides a useful large corpus of spontaneously produced SMLS (both established forms and some nonce signs) from a wide cross-section of the signing deaf community. The more structured set of interviews with linguistically aware deaf consultants, conducted with the purpose of finding out more about the use of conventionalised fingerspelled signs in BSL (Study 3), provides more detailed information about a sub-set of SMLS that are conventionally used in BSL. The place-names study (Study 4) allows us to look at further particular instances of occurrences of SMLS, and the incorporation of morphology study (Study 5) shows how BSL morphology can be incorporated into SMLS.

9.1.1 Single Manual Letter Signs in Data Corpora for this Research

It is a very common process in BSL to use only the first manual letter of an English word. This single letter does not undergo any phonological changes with the possible exception that it may be articulated more than once. These are simple SMLS.

In the See Hear! data there were nearly 3,000 (2949) instances of single letters being used as lexical tokens. Examples of the varied use include -d- ("Dutch"), -w- ("widow"), -a-a- ("automatic"), -p- ("pounds"), -e- ("Europe") and -m- ("minutes").

Some noun phrases such as "social services" or "local authorities" involved the use of the initial letters of the English words, and in these cases each letter was counted as an instance of use of an initial letter on the grounds that there is no reason why one or other part of the noun phrase could not have been signed using signs unrelated to fingerspelling.

Another possible way of seeing these pairs of SMLS is as some form of acronym. However, acronym fingerspellings in BSL are frequently (although not exclusively) accompanied with lip-patterns of the letter names, rather than the words from which they are derived (see sections 7.1.1 (p211) and 7.2.11 (p231) for further discussion on this). Although the mouth patterns did not always accompany these SMLS, those that did were clearly derived from the English words such as "local authority", rather than "L.A". For all these reasons they were treated as separate instances of SMLS, rather than abbreviations.

Of these 3,000 tokens, 77% were simple SMLS. The remaining 23% (670) were manual letters with a special movement.

It was also possible to break these figures down further to show the source of the SMLS. Nonce SMLS made up 28% (831) of the single manual letters used, SMLS firmly established in BSL made up 31% (925), and initials of names made up 18% (523). This may be seen in Table 9.1.

Simple - nonce	31%
Simple - established	28%
Simple - initials of names	18%
SMLS with added movement	23%

Table 9.1: SMLS used in See Hear! corpus.

Despite the large number of tokens in the established BSL SMLS category, the number of different types was relatively small at 31. This compares with 376 types in the English first letter category. From this it may be seen that established SMLS are used frequently, and that the nonce creation of SMLS is very common.

The experimental research involving place-names also demonstrated that the selection of a simple SMLS is a very productive method of lexicalisation. In this study it was the most productive process, for both deaf and hearing signers, accounting for 26% of all responses to the place-name stimuli in the study. A more detailed breakdown of the results may be seen in Table 9.2 which shows the percentage of responses in each word-type which used the first letter only.

	Deaf	Hearing
3 letter words	13% (28)	31% (66)
4 letter words	27% (115)	34% (144)
> 4 letters (monosylls)	28% (33)	20% (23)
> 4 letters (bisylls)	27% (199)	25% (179)
> 4 letters (polysylls)	25% (101)	23% (89)

Table 9.2: Use of first letter in the place-names study.

(number of responses given in brackets)

For the deaf subjects, the response was more likely to be an initial letter where words are more than three letters long. This must be seen as the corollary to the fact that shorter words are more likely to be fingerspelled fully, and the two sets of responses are linked.

The hearing subjects, however, showed a different tendency. They were more likely to produce initial letters for 3- and 4-letter words than for longer words, for which they had other strategies.

This shows that the use of SMLS is linked to the fingerspelling skills of the signers. The hearing signers, whose fingerspelling is not very accomplished, do not fingerspell short words, so they are more likely to produce SMLS instead.

Although the deaf and hearing signers in the place-names study showed different patterns of responses to the English words, there is no doubt that the most productive use of the manual alphabet is the creation of a simple SMLS.

This use of unmodified initial manual letters as established signs is very much more common in languages using the two-handed manual alphabet than one-handed. It is common in BSL but does not occur in ASL (Akamatsu, personal communication, July, 1991). Auslan, which uses two-handed fingerspelling but is influenced by initialised signs from the one-handed alphabet, has such signs made with letters from the two-handed alphabet, but not the one-handed (Johnston, 1989). In BSL, the letter -c- is the only single-handed letter and consequently is subject to different linguistic processes from two-handed letters. This may be seen in sections 9.2.4 (p377) and 9.3 (p386). One of the deaf consultants interviewed in Study 3 spontaneously claimed that no BSL signs consist of a single stationary -c-, although there are plenty for which the moving manual letter -c- is the basis. This implies that the absence of motionless SMLS in ASL is a result of the manual alphabet being one-handed, rather than any particular linguistic rule of ASL.

SMLS may combine with other simple signs or with other SMLS. For example, the manual letter -w- may occur with the numeral "3" to produce THREE WEEKS, the manual letter -g- may occur with the non-derived sign PIG to produce GUINEA PIG and the SMLS MOTHER and FATHER (-m- and -f-) may combine to produce -m-f-, glossed as PARENTS.

This process of combination with other signs or manual letters is particularly productive in signs referring to time and measurement and in some kinship

terms. Examples include the signs translated as "Daughter-in-Law", "Grandmother", "Grandfather", "Minutes,", "Seconds", "Weeks", "Months", "Years", "Metres", "Miles" and "Gallons".

The occurrence of an independent simple SMLS derived from monosyllabic words is comparatively infrequent. As was mentioned in section 8.2 (p274) in the discussion of full fingerspellings, most monosyllabic words are short enough to be fingerspelled in full, such as -t-a-x- or -s-o-n- (or at least use a fingerspelled pattern, in which vowels are reduced or eliminated and other letter handshapes altered, eg -f-r- glossed as FOR) so they do not need to be reduced to a SMLS, with the accompanying ambiguity that may arise.

It is one of "Zipf's laws" that there is an inverse relationship between the length of a word and its frequency (Crystal, 1987). Monosyllabic words are the most commonly used, and are frequently core words. These English core words are probably core items of vocabulary in BSL too. It is possible that there is less need to borrow these English core words into BSL because other non-derived signs already exist in BSL.

9.2 SIMPLE SMLS

In a simple SMLS, there is no addition of movement, or change in location. The only change that might occur is repetition of the manual letter.

9.2.1 The History of Some Simple SMLS

The history of some SMLS can be traced through dictionaries of signs or written descriptions. Dalgarno suggested the use of the first letter to represent a whole word as early as 1680. Lucas (1812) also proposed that certain words only needed the first letter to be spelled. Neither Dalgarno nor Lucas, however, gave any example of signs that could be made this way. Neither writer was concerned with sign language, but only with representing written English on the hands, so any uses of the first letter within BSL would have to have been borrowed from this process.

Mrs Hippisley Tuckfield (1839), who did believe in the use of "natural signs", suggested that one way of representing the days of the week may be "the first letter of the name shewn on the finger" (1839:205). Modern SMLS for days of the week are exactly as she suggested.

It may be possible to see the introduction and establishment of SMLS, through the history of the signs MOTHER and FATHER. Samuel Smith (1864) described pointing to a wedding ring as the sign MOTHER and whiskers for FATHER. Tylor (1878) gave "father" as MAN WHO SHAVES or MAN OLD. Nevins (1895) claimed that in the sign FATHER:

> the finger alphabet is brought in as an assistant, and the finger letter F, followed by the pluck of the beard, shows the 'F' man - the father...Three fingers on the forehead or other palm generally indicates the 'M' woman - the mother. (1895:9)

Then, in 1889, a set of vocabulary items by Ash gives FATHER as a duplicated -f- and the Scottish form of MOTHER as a duplicated -m- articulated against the temple.

Unfortunately it is not clear if these three descriptions of the sign FATHER show a progression towards the use of the SMLS form or if Smith, Nevins and Tylor were simply reporting dialectal variations. Certainly all other subsequent references to "father" involve the fingerspelled -f-. The "Dictionary of D and D Signs" (1895) also offers FATHER as a doubly articulated -f-. (It also gives BIBLE as a doubly articulated -b-, and DAUGHTER as a doubly articulated -d-.)

A booklet of Irish signs, "Guide to the Silent Language of the Deaf", gives YOU as the manual letter -u-. This is not a sign that is used in BSL today, and there do not appear to be any other records of this pun being used in BSL (although the letter names are used in puns in Cistercian sign language (Barakat, 1987), for example in -d-SIDE, for "decide").

Ash's "Guide to Chirology" (1895) also gives two simple SMLS as a single -e- for "England" and a single -i- for "Ireland".

Although there is evidence of SMLS used within BSL at least 100 years ago, this research has not found any evidence in the available archival records of any progression from the full citation fingerspelling to the SMLS that became established. The only possible evidence of any sort of evolution is seen in the signs glossed as FATHER in the late nineteenth century, in which the manual letter is first accompanied by a non-derived sign, and then the manual letter alone is used. However, there is no evidence to imply that SMLS have slowly

evolved through a gradual shortening of the fully fingerspelled English word. Rather, they appear to have been constructed directly from the English word.

9.2.2 Number of Articulations of Simple SMLS

Apart from the obvious orthographical link between the SMLS and the English source word, the closest link may be the reflection of the syllabic structure of the English source words in the articulation of the SMLS. In this discussion, the term "double articulation" is used to mean that the manual letter is articulated twice. (In some literature concerning one-handed manual alphabets, the term is used to mean that the one-handed manual letter is made by both hands simultaneously, but that is not how it is used here.)

There is a folk belief that the number of articulations of a manual letter in a simple SMLS is dictated by the number of syllables in the English source word. For example, "mother" is a bisyllabic English word, and MOTHER is realised using a doubly articulated -m-. Other examples include ANSWER, BIBLE, DAUGHTER, FATHER, KITCHEN, MEMBER, MONDAY, TOILET, TUESDAY and WEDNESDAY, all of which were accepted by the consultants in Study 3 as established signs in BSL that are realised using the doubly articulated manual letter derived from the first letter of the English word.

If this link between number of syllables and number of articulations of the manual letter were invariable, it could be said that the form of the English word strongly influence the form of the BSL SMLS. Closer investigation, however, shows that the folk belief is not correct, and it is worth looking more closely to

see the real relationship between the SMLS and the syllabic structure of the English source word.

Some uses of the first letters from polysyllabic and monosyllabic English words in the See Hear! corpus do not follow the syllabic structure so closely. For example, the English word "quality" should, by this rule, give rise to -q-q-q-, but is realised as only -q-q- when it is a simple SMLS. Similarly, "government" produces -g-g-, not -g-g-g-. Other examples of polysyllabic words borrowed as SMLS with only double articulations are "anniversary" and "Nottingham".

Salience of the syllabic structure of an English word is closely bound with the spoken form of the word. Weak syllables are less salient for lip reading, so it is possible that the stronger syllables of the English word may be reflected in the resultant SMLS while the weaker ones are not. The syllabic structure of an English word is not always readily apparent from its written form, either, so a word such as "Wednesday" may appear trisyllabic when written, but is pronounced as a bisyllable by most speakers of Standard English, and the common form of the SMLS is a doubly articulated -w-.

It is not uncommon for singly articulated manual letters of bisyllabic words to occur during conversational signing, for example -f-, glossed as FATHER, may be used instead of -f-f- and -d-, glossed as DAUGHTER, may be used instead of -d-d-. This could be seen as a natural tendency for reduction and elimination of redundant phonemes or morphemes during casual use of language and may be associated with the rhythm of the utterance.

This influence of rhythm may also be behind the occurrence of manual letters which are occasionally repeated more than twice (eg -d-d-d-d- glossed as DAUGHTER, which occurred in the See Hear! corpus). Another possibility is that it is a device to gain time while the signers try to gather their thoughts, or to hold the floor without signing immediately.

Although some evidence will be presented here to suggest that there is some sort of link between number of syllables and number of articulations of the SMLS derived from monosyllabic and bisyllabic words, SMLS derived from words with more than two syllables do not seem to reflect syllabic structure. The repetition is usually limited to duplication (eg -g-g- glossed as GOVERNMENT). This seems to be related to the morphology of the English word, as the signs may reflect the perceived morphological structure of the English word (eg in GOVERNMENT the first -g- covers the word picture corresponding to the English morpheme "govern" and the second -g- occurs during the mouthing representing the English morpheme "ment").

Having looked at the broad picture of the use of multiple articulations it is worth considering the data in more detail.

The issue of the relationship between syllabic structure of the English word, and the number of articulations for nonce SMLS will be addressed first, as these could be considered closest to English. In these nonce SMLS, the signer makes a clear loan from English. At the most extreme level, the most important part of the lexical item must be said to be the lip pattern, and the manual letter merely helps to identify the spoken English word. Established SMLS which are regularly used within BSL may have been more influenced by BSL rules of sign-

formation and so may show different patterns. Established BSL SMLS will be considered after this.

Nonce Single Manual Letter Signs

In the See Hear! corpus, the data showed the following distribution of the number of articulations of the nonce SMLS according to syllabic structure of the source words. This may be seen in Table 9.3.

	1 syllable	2 syllables	> 2 syllables
1 articulation	**77%**	49%	45%
2 articulations	22%	**47%**	48%
3 articulations	0%	3%	**7%**
4 articulations	2%	0%	0%

Table 9.3: Articulations of nonce SMLS according to syllabic structure of the source words.

This table shows that the folk belief about the close link between syllable number and the number of articulations does not hold in this corpus. If it did hold, the figures in bold would all be of a high percentage.

For the most part, monosyllabic English words do seem to lead to single articulations of nonce SMLS, but the link does not hold for bisyllabic and trisyllabic words. For bisyllabic words, single articulations are as likely as double articulations. For the trisyllabic words there are very few triple articulations, and single or double articulations are almost equally as likely to

occur. It is true, however, that double articulations are more likely to occur in SMLS derived from bisyllabic words than they are for SMLS derived from monosyllabic words.

Clearly, the syllabic structure of the English word only influences the form of nonce SMLS to a certain extent. A deeper analysis of the See Hear! data shows more information about this.

For every occurrence of a nonce SMLS in the See Hear! corpus, the number of articulations of the first letter handshape was noted. There were not enough signs with three, four or five articulations of the first letter handshape to include them in any statistical analysis, but it was clear that there was very little link between the number of articulations and number of syllables for these SMLS. However, there was enough data to compare single and double articulations.

The analysis showed there is definitely *some* link between the length of the English word and the number of articulations of the handshape within the nonce SMLS.

When the source English words are grouped according to their syllabic structure, and compared with the number of articulations in the SMLS, the number of syllables is significantly higher for double articulations than for single articulations. In other words, bisyllables give rise to more doubly articulated SMLS than monosyllables do. A oneway analysis of variance of number of syllables and number of articulations is highly significant (df 1,497 $f=45.3$, $p<0.0001$).

It is also possible, however, that syllable structure is irrelevant and that the important variable is simply the length of the English word. Longer words could give rise to more articulations of a SMLS than shorter words. This possibility needs to be considered.

Grouping the source English words according to the number of letters and comparing the number of articulations for every sign in each group also shows that double articulations are more strongly associated with longer words than single articulations (df 1,483 f=45.6, $p<0.0001$).

As word length and number of syllables are also related, however, it is not easy to determine which factor is responsible for this effect. Part of the place-names study hoped to solve this problem. The place-names study did attempt to produce SMLS that had the form of established signs, but a comparison with these nonce SMLS is worth making because it can help to solve this problem.

In the place-names study there were some monosyllabic and bisyllabic words of six and seven letters . The articulations of SMLS from the monosyllabic items were compared with those from the bisyllabic items. The results may be seen in Table 9.4.

The table shows clearly that the important difference in number of articulations lies in the number of syllables. Here the number of letters in the English source word is the same in both groups, but the number of syllables is different and the bisyllabic source words give rise to a much higher percentage than the monosyllabic source words.

	1 syllable	2 syllables
1 articulation	44%	17%
2 articulations	44%	80%
3 articulations	11%	3%

Table 9.4: Articulations for SMLS from six-letter and seven-letter words of one and two syllables (Study 4).

The strong statistical link found between syllable number and number of articulations masks the fact that the link does not hold consistently, and there is no obvious other feature of the English word to account for the rule's exceptions. Something else must over-ride English syllable structure in these situations. It may be influences from BSL or the result of the idiosyncratic styles of individual signers. This will be discussed in more detail in section 9.2.3 (p360 ff).

With regard to the folk belief, then, it is more accurate to claim that, generally, monosyllabic English words are sources for single articulations of SMLS, whereas English words of more than one syllable are much more likely to be sources for multiple articulations of SMLS. The exact form that the articulation of these signs takes is determined by BSL and its users, rather than English.

Having described the general relationship between English source words and number of articulations in a SMLS, this section will consider the situation for monosyllables, bisyllables and words of more than two syllables in turn. The data here comes from the See Hear! corpus.

a) Nonce SMLS Derived from Monosyllables

Within the entire See Hear! corpus of data, there are relatively few nonce SMLS derived from English monosyllabic words (19% of all the nonce SMLS).

This is also seen in data from the place-names study which aims to reflect the structure of more established SMLS. The data show that shorter place-names (and by extension those that are monosyllabic) are less likely to be produced as SMLS, and so very few SMLS derived from monosyllables should be expected. It has already been shown in section 8.2 that short, monosyllabic words tend not to be borrowed as SMLS, because they can be fingerspelled fully instead.

Content monosyllables make up 11.4% of the MRC psycholinguistic database of 33,313 English words (Cutler, 1993), so at first glance, it might seem that the use of nonce SMLS from monosyllables is in line with the proportion in English. However, monosyllables are the words used most often, and between 45% and 59% of English discourse consists of monosyllabic content words. Thus, the use of nonce SMLS derived from monosyllables is well below the expected occurrence of monosyllables in a piece of English discourse.

Analysis of data from the See Hear! corpus shows that of 50 types of SMLS derived from monosyllabic English words, 46 articulated the manual letter only once. This mirrors the syllabic structure of the English word and implies that the monosyllabic nature of the English source word is very often reflected in the SMLS consisting of a single articulation of the manual letter.

However, another explanation is needed for the tokens of the other four types. Of these, there was only one token of one type which articulated the manual letter four times (-q-q-q-q- from "Queen", referring to the chess piece). The English word "belles" produced the nonce SMLS -b-b-, and the word "costs" was the source for -c-c-. Of the SMLS derived from the English word "kind" (the noun), three tokens were realised using a single articulation, but a fourth token consisted of two articulations (-k-k-). These occurrences cannot be explained by syllabic structure of English, and are more plausibly explained by influences of BSL such as repetition for emphatic stress. The influences of BSL are discussed below in section 9.2.3 (p360).

The fact remains, however, that there is a fairly strong connection linking monosyllabic source words to singly articulated SMLS. Deviations from this rule need to be explained either sociolinguistically or through influences of BSL.

b) Nonce SMLS Derived from Bisyllables

The claim that the number of repetitions of the first letter handshape is related to syllable structure may at first seem supported by the fact that many nonce SMLS derived from bisyllabic words do have a double articulation (eg nonce use of -g-g- derived from the English word "German", and -d-d- derived from "details").

However, in the See Hear! corpus, of 154 nonce SMLS derived from bisyllabic English source words, only 47% had double articulations. Only 36 types were exclusively doubly articulated. A further 21 types sometimes had a double articulation, but otherwise had a single, triple or even quadruple articulation. Even more damaging to the theory linking articulations with syllables is the fact

that 96 types were only articulated once. (One more had triple articulation.) This means that scarcely one third of all the data fits this theory.

Generally, the use of signs as part of a noun phrase with a manual letter is more likely to result in SMLS having single articulations of the manual letter, eg -p- WALES for "Princess of Wales" and HOUSE-c- for "House of Commons". This is one reason for the lack of correlation between syllables and number of articulations. This shows the influence of BSL, rather than English, as the SMLS has become more like a morpheme in a compound. In compounding in BSL, elements containing repetition are likely to lose that repetition in compounds (see, for example, Klima & Bellugi, 1979). This loss of repetition is particularly common in the first element of the compound, but also occurs in the second element. (See section 9.2.3 (p367) for more discussion of this). However, there are singly articulated nonce SMLS from bisyllabic words which are not compounded.

c) Nonce SMLS Derived from Trisyllables

For the number of articulations in a SMLS to reflect the syllabic structure of the English source word, trisyllabic English words should result in triple articulations.

In the See Hear! data, this was not so. Of 250 SMLS tokens, produced from trisyllabic English words, only 4% contained three articulations of the manual letter (eg -d-d-d- derived from "dimension"). Forty-two percent had only one articulation and 52% had 2 articulations. This data contained 85 trisyllabic types, of which only five resulted solely in triple articulations and a sixth resulted in single, double and triple articulations. Thirty-nine had only single articulations and 30 had only double articulations.

This lack of correlation between syllabic structure of the English word and the number of articulations is seen again in words with four and five syllables. One four-syllable word had a quadruple articulation (out of 22) and there were no quintuple articulations at all (from 11 five-syllable types).

This analysis of the See Hear! corpus has shown that there is some link between syllable structure of the English word, and number of articulations of the nonce SMLS. These nonce SMLS could be less influenced by the morphology of BSL because of their recent or temporary nature. Consequently, it is worth considering established SMLS, and investigating the relationship between the English word and structure of the SMLS in these circumstances.

Established Single Manual Letter Signs

For this discussion, established SMLS will be drawn from the See Hear! corpus, and the place-names study. It has already been explained in section 4.3.1 that a satisfactory definition of an established loan sign is elusive. Those SMLS treated as established SMLS here occurred with high frequency in the corpus, or are well-known as SMLS in BSL and were accepted as BSL signs by the linguistically aware deaf consultants interviewed in Study 3 as being BSL signs. For example the SMLS that may be glossed as QUALIFY or QUALIFICATIONS occurred in the See Hear! corpus more than thirty times, and so must be counted as an established BSL sign. Other SMLS such as -w- (WEEKS), -y- (YEARS), and -m- (MONTHS) occurred in the corpus over fifty times each. Some SMLS such as -t-t- (TOILETS), -k-k (KITCHEN) and -m-m- (MONDAY) occurred in the See Hear! corpus fewer than ten times, but were all accepted by the consultants in the interviews in Study 3 as established BSL SMLS.

The responses in the place-names study are treated here as though they were established SMLS. The consultants were all asked to reply with the fingerspelled form that they would use if they used the place-name very often, so any SMLS given are treated as SMLS that would be used regularly and thus as established signs.

The overall number of articulations of established SMLS derived from words with different numbers of syllables can be compared in the See Hear! corpus (Table 9.5) and the place-names study (Table 9.6).

See Hear!	1 syllable	2 syllables	>2 syllables
1 articulation	86%	45%	37%
2 articulations	14%	52%	57%
3 articulations	0%	3%	4%
4 articulations	0.2%	0.3%	1%
Total number of items	(543)	(296)	(67)

Table 9.5: Lexical items in the See Hear! corpus showing the percentage of articulations of the SMLS derived from English words with different syllabic structures.

Deaf	1 syllable	2 syllables	3 syllables	>3 syllables
1 articulation	48%	6%	2%	0%
2 articulations	28%	78%	69%	57%
3 articulations	13%	12%	17%	36%
4 articulations	3%	1%	3%	7%
5 articulations	4%	0%	5%	0%
6 articulations	0%	0%	1%	0%
Special movement	5%	1%	2%	0%
Total number of items	(108)	(267)	(88)	(14)

Table 9.6: Responses from deaf signers in the place-names study, showing the percentage of articulations of the SMLS derived from English words with different syllabic structures.

The noticeable difference between these two sets of data is in the number of single articulations in SMLS from monosyllabic and bisyllabic words. In the See Hear! data there is a much larger percentage of single articulations. This is an important difference and shows the influence of BSL word-formation process upon the creation of SMLS.

Many of the SMLS from See Hear! are SMLS that are used in conjunction with numerals, for example, YEAR, WEEK, MONTH, MINUTE, MILLION and METER. The addition of a numeral to a SMLS produces a single articulation of the manual letter (see section 9.2.3, p357), and this illustrates the effect of BSL word-formation on SMLS. It would appear that some sign languages, including

ASL and BSL, are fundamentally bisyllabic. By this, it is meant that the signs are made up of a preferred maximum of two sonorous segments (Brentari). Combination of a numeral with a doubly articulated manual letter would create a sign with three sonorous segments. Loss of one articulation of the manual letter reduces the sign to the preferred bisyllable.

In the place-names data, hearing strategies for the number of articulations of a manual letter (given in Table 9.7) may be compared with those reported for the deaf signers.

Hearing	1 syllable	2 syllables	3 syllables	>3 syllables
1 articulation	66%	27%	13%	10%
2 articulations	30%	70%	81%	70%
3 articulations	0%	0%	4%	20%
special movement	4%	3%	3%	0%
Total number of items	(153)	(260)	(79)	(10)

Table 9.7: Responses from hearing signers in the place-names study, showing the percentage of articulations of the SMLS derived from English words with different syllabic structures.

The most noticeable difference between the deaf and hearing signers is the production of multiple articulations by the deaf subjects. No hearing responses involved the production of any more than three articulations of the first letter.

Production of the three articulations was almost exclusively limited to place-names of more than three syllables. In the deaf group, the number of articulations was higher, although six articulations was the maximum. Within the deaf group there was also a greater use of three articulations, even for place-names of only one syllable.

The high number of multiple articulations of letters for monosyllabic words is the result of the strategies of only a few subjects, in both the deaf and hearing groups. Within the deaf group, there were 47 occurrences of multiple articulations for monosyllabic place-names, but 83% of these were produced by only three people, one of whom was responsible for 43% (This same subject was also the source of 67% of the SMLS using more than two articulations for bisyllabic words (24 of the 36 produced)). Of the 46 occurrences in the hearing group, 76% were produced by three people. one of whom was responsible for 37%. This again shows the idiosyncratic nature of responses to the place-name stimuli, showing how a signer may use one particular strategy in response to a certain English word-form.

Having described the patterns broadly, they will now be considered in more detail, looking at SMLS derived from English words of different syllable length.

a) Established SMLS Derived from Monosyllables

Monosyllabic words may only produce a single articulation of the first letter but they may also produce multiple articulations. Examples of established SMLS in BSL include YEAR, MONTH, WEEKS, YOUNG and PENCE. These are, however, comparatively rare and are often exceptional for other reasons, particularly their frequent use in conjunction with numerals.

In the See Hear! corpus studied there were established signs derived from 23 monosyllabic English words. Of these, 18 types only had a single articulation of the first letter handshape, and five had more.

The link here between the number of syllables and number of articulations is strong. It may be strengthened by the fact that so many of the established signs occur in conjunction with numerals or other signs such as 5-w- (5-WEEK), or DEAF-c- (DEAF CLUB). The smaller number of single articulations in the place-names study is probably for the same reason that there are relatively few singly articulated nonce SMLS. That is, that the use of this form is comparatively uncommon unless it occurs accompanied by another sign.

b) Established SMLS Derived from Bisyllables

An analysis of all the tokens of these established signs occurring on See Hear! reveals again that established signs with double articulations of SMLS are derived from English words with a higher average number of syllables than signs with single articulations (df 1,893, f=201 $p<0.0001$).

However, for the bisyllabic source words, there were an almost even proportion of single and double articulations in the SMLS. There were established signs derived from 37 bisyllabic English words. Of these, five had only single articulations, 14 had only double articulations and 18 were mixed, sometimes occurring as single and double or even three or four times.

So we can say that bisyllabic words are more likely to produce double articulated SMLS than monosyllabic words are. However, bisyllabic words produce equal numbers of singly and doubly articulated SMLS.

Of the data from the place-names study, there is a better link between the number of articulations within the SMLS and the bisyllabic word. However, even this is not perfect, as may be seen in Table 9.8.

	Deaf	Hearing	See Hear!
1 articulation	6%	27%	45%
2 articulations	78%	70%	52%
3 articulations	12%	0%	3%
4 articulations	1%	0%	0%
Total number of items	(267)	(260)	(296)

Table 9.8: Percentage of articulations in SMLS derived from bisyllabic source words, with comparative data from See Hear! study.

c) Established SMLS Derived from Trisyllables

In the See Hear! corpus, there were established signs derived from 8 trisyllabic English words. Of these, three types had only single articulations, and five had both single and double. There was only one instance of a triple articulation of an established sign from a trisyllable. The two four-syllable words also led to established SMLS that had mixed numbers of articulations, as did the two five-

syllable words. There was only one instance of a quadruple articulation in a sign derived from a four-syllable word. There were no instances of five articulations.

The data derived from the place-names study, is closer to the rule correlating articulations with syllables, but the two are still not closely linked. This may be seen in Table 9.9.

	Deaf	Hearing	See Hear!
1 articulation	2%	13%	37%
2 articulations	69%	81%	57%
3 articulations	17%	4%	4%
4 articulations	3%	0%	1%
5 articulations	5%	0%	0%
6 articulations	1%	0%	0%
Total number of items	(88)	(79)	(67)

Table 9.9: Percentage of articulations of a SMLS derived from a trisyllabic source word, with comparative data from See Hear! study

In summary, then, there is a perceivable link between the number of syllables of an English source word and the number of articulations of a SMLS. This is true for both nonce and established SMLS. However, the link is only a *tendency* for the number of articulations to reflect the number of syllables, and does not hold at all for SMLS from source words of more than two syllables.

9.2.3 Influences outside English upon the Number of Articulations in a SMLS

It is very clear, then, that English has some influence on the number of articulations but also that something other than English must be influencing the number of articulations. It is possible that the numbers of articulations are completely random and arbitrary, but evidence will be presented here to show that the majority, at least, can be explained by other processes operating in BSL.

Variations in the number of articulations may occur in order to reduce homonyms, as part of pluralisation, as grammatical inflections showing aspect and adjectival intensity, and as a result of joining the manual letter with other letters or non-derived signs, for example in compounding and cliticisation. Prosodic factors such as rhythm of signing or ways of marking emphasis may also influence the number of articulations, as may the physical form of the manual letters. These will be considered below.

Homonyms

One important reason for the varying use of the number of articulations is the reduction of potential homonyms that could arise as a result of use of single manual letters.

Within the established signs in BSL, the monosyllabic English word "young" is the source of the established sign YOUNG which involves the articulation of -y- twice. One reason for this could be because of the potential clash of homonyms that could arise with the SMLS YEAR involving -y-. Woll (1987) claims that addition of specialised movement is a device to reduce the number of potential

homonyms in SMLS, so it is possible that the repetition of the -y- handshape in YOUNG serves the same disambiguating function.

However, several signs using -m- have not undergone this distinguishing change. Also, one sign for "York" is the doubly articulated -y-, as is the well-established loan SMLS -y-y-, glossed as YELLOW. This would also create more homonyms.

It was hypothesised that a distinction is developing between the adjective and noun forms of "young" in which the adjective YOUNG involves -y-y- and the word-picture derived from the English word "young" and the noun YOUNG involves -y- and the word-picture derived from the English word "youth". However, the data here did not support this. Of all the SMLS glossed as YOUNG and YOUTH about half of each had single articulations and half had double. This may be seen in Table 9.10.

	YOUNG	YOUTH
-y-	47%	54%
-y-y-	51%	46%
-y-y-y-y-	2%	0%
Total number of items	(88)	(41)

Table 9.10: Percentage of articulations in SMLS glossed as YOUNG and YOUTH.

The reason for the different numbers of articulations here, then, is still unclear.

In spoken languages, when a phonological change occurs in which two phonemes become non-contrastive, the collapse is permanent and the two phonemes do not reappear separately again. In the situation of the creation of SMLS, all contrasts are collapsed when two signs are made using a single manual letter. However, the research on the use of mouth-patterns in sign languages has demonstrated that mouth-patterns from spoken languages help to disambiguate potential homonyms on the hands (eg Pimia, 1990, and Ebbinghaus & Hessman, 1990). So long as the SMLS do not become homonymous (because they retain the disambiguating mouth pattern), there is always the potential to separate the two lexical items at a later stage, perhaps by adding special movements to the hand-arrangements.

The combined influences of additional movement in a manual letter and the use of the mouth pattern of the spoken source word have yet to be studied in detail. Further research would show when these two methods of disambiguation of homonyms are used, and what the relationship between them is.

Aspect and Adjectival Intensity

In BSL, both aspect and adjectival intensity may be shown by repetition of the sign. This may also be seen when the sign is a SMLS. An example of an aspectual inflection is seen in -m-, which is glossed as MONTH but -m-m-m- which is glossed as MONTHLY. Modulations of adjectives can be seen in the multiply articulated SMLS -y-y-y-, which may be glossed as TOO YOUNG, derived from -y- or -y-y- YOUNG. This will be considered in more depth below.

Pluralisation

Another possibility is that plurality may lead to repetition of the letter handshape, because repetition is one device in BSL to show pluralisation. The rules of pluralisation of nouns in BSL have not been described in detail, although Deuchar (1984), Kyle & Woll (1985) and Brennan (1992) do give brief descriptions, and it seems that pluralisation in BSL and in ASL occurs though similar processes. Baker and Cokely (1980) claim that pluralisation in ASL can be effected in four ways. One method is to repeat the noun in different spatial locations. However, in ASL, the pluralisation of the noun itself is a relatively unproductive process. Repetition is only possible with a few nouns and in some contexts.

Number signs, and quantifiers generally, may also be used to indicate more than one, when used with nouns. In this situation there is no repetition of the noun, unless the signer wants to assign spatial locations for later reference. A great many SMLS that occur in the semantic field of time are single instances of letter handshapes, eg -m- (MONTH), -w- (WEEK) and -y- (YEAR) On every occurrence of these three signs in a sample of three years of See Hear! the plurality was indicated by a number sign.

One signer in the See Hear! corpus did sign -t-t- glossed as THOUSANDS AND THOUSANDS, which might be seen as use of repetition to indicate pluralisation. Apart from this one example, however, there is no other evidence in the See Hear! corpus that pluralisation is shown by repetition of a fingerspelled letter.

Deuchar (1984) reports that BSL nouns involving repetition of movement in the singular do not undergo modification of movement for the plural. They have to take some other plural quantifier instead. Although this does not concern signs derived from monosyllabic English words, it is relevant to signs derived from English words of more than one syllable. It is not clear how they are modified for plurality and this merits further research.

An in-depth interview with a native deaf consultant to investigate the morphological information carried in SMLS provided some more information about this question.

The use of -w- to mean WEEK, is acceptable when it is part of a phrase using a numeral. Thus, THREE-w-, SIX-w-, and TWENTY-TWO-w- are all acceptable. Another sign glossed as WEEK (using the active 'G' hand moving along the forearm and 'G' hand of the passive hand) can incorporate numerals in the handshape of the active hand, but only up to a point. Using an active hand to incorporate THREE or SIX are acceptable, but not TWENTY-TWO. The numeral information for TWENTY-TWO is not found in the handshape alone, but also in the movement and location of the hands. Consequently, incorporating the handshape into the sign WEEK does not convey the correct meaning. In this case, the sign -w- or the unmodified sign WEEK, using the active 'G' hand is necessary, in conjunction with the numeral (see video reference 9.1).

A BSL signer who is a fluent fingerspeller might use -w-e-e-k-s- or -w-e-e-k- in this context. The terminal -s- is optional because the accompanying numeral is sufficient in BSL to show plurality, but it may be retained because the English word is being used.

In signing the relationship between the European Government and the governments of the member states, it is possible to articulate the manual letter -g- (glossed as GOVERNMENT) three times, rapidly, with progressive (but not careful) displacement, as a general plural marker. This process is used in ASL to pluralise other non-derived signs (Baker & Cokely, 1980, and Padden, 1990) and is also seen in BSL. The most common non-derived sign glossed as GOVERNMENT uses the clawed '5' hand at the front of the head, in a sign homonymous with QUEEN. This sign cannot be pluralised in the same way, and needs to be used in conjunction with a repeated and displaced proform

When the sign is inflected, it loses its relationship to the syllabic structure of the English word and the letter repetition is related to the inflection for number. The base hand of the sign moves smoothly while the active hand makes stronger, more rhythmic movements than in the uninflected sign, eg MEMBER vs THEY'RE ALL MEMBERS and QUARTER vs QUARTER-OF-EVERYTHING.

The pluralisation of these signs behaves in the same way as the pluralisation of other BSL non-body-anchored nouns. These signs can be inflected for the plural in a way that lexicalised fingerspellings of more than one letter cannot. CLUB may involve a stylised movement of c-l-u-b- or simply the manual letter -c-. The former sign cannot be modified by movement to mean "several clubs" but the latter can. Similarly, JOB may involve the letters -j-b- but in "several jobs" it is possible to delete the -b-, leaving the -j- to function as a sign of a single letter.

The adjective JEALOUS may also be inflected for number so that several people may be shown to be jealous of the signer by using the repeated, relocated manual letter -j-. The consultant who described this sign would only use it light-heartedly, in place of the more common sign JEALOUS. The non-derived form of JEALOUS is body-anchored, being articulated on the mouth and so cannot be inflected in the same way as the freer loan.

It would seem that one of the most productive ways of pluralising a single manual letter noun is to use a proform for the noun and add a plural modulation to a singular proform or use a plural proform. Use of proform allows expression of information about position and orientation of the referents as well as number.

When a locative indexical proform is used in conjunction with a SMLS derived from a bisyllabic English word, the number of articulations is frequently reduced to one. Examples may be seen in the materials used for Study 5. When signing, "there is a kitchen there, there and there", the sign KITCHEN may have a single articulation of the manual letter -k- and be accompanied by an index finger pointing to the location in the signing space. Similarly, when signing "there is a government in that country, that country and that country" the sign GOVERNMENT may have a single articulation of the manual letter -g- and be accompanied by the same pointing index.

Other Multimorphemic Signs

As well as plurality, there are other BSL morphemes that may be incorporated into nouns and adjectives. Repetition of the letter may be used to indicate affect and intensity in at least one established SMLS. YOUNG may consist of a single manual letter -y- while TOO YOUNG may involve the repetition of the manual letter -y- several times, accompanied by changes in facial expression and body posture. In some contexts the repetition may be rapid, with small, compact movements between each repetition, showing intensity. An example given by one deaf consultant in Study 3 was a gentle admonition to a child such as "You're too young to be using make-up". In other contexts, the repetition may be slow, with large, sweeping movements between each repetition, showing affect, for example with regret, such as "He's too young to have gone deaf".

SMLS may also occur as part of compounds, which are, by definition, multimorphemic. The process of compound formation in sign languages has been well documented. Klima and Bellugi (1979) have described the processes involved in compounding for ASL, and Brennan (1986, 1990) has shown that similar processes occur in BSL.

A compound sign is made up of two signs which are lexical roots in the language and which then function syntactically as a single lexical unit. The properties of the component signs may change as a result of compounding. Typically, changes in the first sign involve loss of stress and repetition, so that the first sign is merely "an upbeat to the second sign" (Klima & Bellugi, 1979). The second sign also loses the repetition but not the strength of movement. If the initial sign is one-handed and the second sign two-handed the base hand of the final sign

can be ready when the initial sign is started. Considering signs based on the manual alphabet, it is unlikely that the initial sign will be one-handed, but it is highly likely that the second sign will be two-handed. The time of transition between the two parts of a compound sign is also very much reduced. The fact that the manual letters behave according to the rules of compound sign formation of BSL gives good grounds for claiming that they are subject to the word-formation processes of BSL.

The effect of compounding on repetition of letters is seen in family terms. MOTHER and FATHER are articulated using -m-m- and -f-f- respectively, but PARENTS, as a compound sign is produced as -m-f- (or possibly -m-f-f-). GRANDMOTHER and GRANDFATHER also involve the loss of one of the articulations, so that -g- combined with -m-m- becomes -g-m- and GRANDFATHER becomes -g-f-. This is also true when a different sign is used for the morpheme GRAND, making GRAND-m- and GRAND-f-. The double articulation may be maintained on occasion, but the loss of one articulation is more common than if the sign were not compounded.

A similar process may occur with kinship terms for those related by marriage. It has already been established that the citation SMLS MOTHER, FATHER and DAUGHTER involve the double articulation of the first letter of the English word. When they occur as morphemes in terms such as MOTHER-IN-LAW, FATHER-IN-LAW, and DAUGHTER-IN-LAW, the first letter sign may be reduced to only one articulation. This is not consistent. Some signers interviewed retained the double articulation, while others produced either single or double articulation. The reduction effect of compounding, then, is not always seen here, although the general reduction to a bisyllabic form is clearly operating as a tendency.

Fingerspelled loans from categories of measurement may undergo structural changes when they are used with a number. In this category are SECONDS, MINUTES, FEET, METRES and GALLONS.

For example, in a sign glossed as SECONDS a signer may use -s-s- in which the duplication of the initial letter reflects the syllabic structure of the English word. However, to express "6 seconds" the sign can be SIX-s-, rather than SIX-s-s-. In a similar vein, MINUTES may be signed using -m-m- but SIX-MINUTES becomes SIX-m-. METRES and GALLONS both show the same changes. With FEET, the sign may be articulated using -f-t-, but describing a person's height as SIX-FOOT can produce SIX-f-, with the loss of the -t-. Thus, it may be said that the sign for "foot" is -f-t-, while the -f- used with a numeral is the reduced form that results from the processes to keep signs bisyllabic.

Other signs that are not part of these semantic groups most prone to manual letter loans also show the reduction of number of articulations of letters. This occurs particularly in compound signs which contain both a manual letter and a non-derived sign. Examples of these signs seen in the See Hear! corpus include -c-FOUR (glossed as CHANNEL 4) and NEW-z- (glossed as NEW ZEALAND).

The signs do not need to be full loan translations. For example in OLD-FASHIONED the first segment of the sign is an 'H' hand at the nose and the second is -f-. Several consultants in Study 3 claimed that the 'H' hand is half of the -f- handshape. They do not see it as a form of the sign OLD. Others

actually sign OLD plus -f- but not OLD -f-f-. INSURANCE may involve the index finger touching the mouth and then -i-i- but not -i-i-i-.

One reason for this reduction of the number of movements within the sign is that it is a move towards the (postulated) ideal of two, while still maintaining sufficient information. Compounding of four units may result in the loss of one redundant unit. The acronym "BBC" may be articulated -b-b-c- (referring to television channels), but when two of the consultants in Study 3 compounded it with the number of the channel, one of the -b-'s was omitted, resulting in -b-c-ONE and -b-c-TWO.

Brentari (1994) has suggested that the reduction of ASL fingerspellings to two letters is part of a general tendency in ASL to have maximally bisyllabic signs. Brentari considers there to be segments of signs that are more or less sonorous, and that ASL signs tend towards having two sonorous segments. If this is the case for BSL, it would go some way to explaining the frequent occurrence of manual letters articulated twice. The repeated letter provides two sonorous segments, but no more.

Form of the Manual Letter

The form of the manual letter may influence the number of articulations in the SMLS. The two manual letters articulated with internal movement (-h- and -j-) are less likely to be part of SMLS that reflect the syllabic structure of the English source word. This is because the internal movement can be made longer and more pronounced instead of repeating the whole movement. This is clearly an influence of BSL.

In the See Hear! corpus, there were eleven instances of SMLS using the -h- hand-arrangement. Of these, eight derived from bisyllabic English words, and three from trisyllabic English words. Of the eleven SMLS, eight had single articulations of the -h-, and only three had two. Bisyllabic source words included "happen", "Harrods", "Hamburg" and "history", and trisyllabic source words included "Hogmanay" and "hospital".

There were six SMLS using the -j- hand-arrangement in this corpus. Four were derived from bisyllabic English words, and two from trisyllabic English words (for example, "jubilee" and "Jarrow"). All six SMLS used a single articulation of the manual letter.

The same pattern can be seen in data from the place-name study. For both -h- and -j-, the overall number of single articulations in SMLS was greater than the overall number of multiple articulations, even when the English word was bisyllabic. The effect is particularly strong for -j-. This is the opposite from what would normally be expected. This may be seen in Table 9.11.

		Percentage of responses	Number of responses
-h-	>1 syllable, 1 articulation	63%	20
-h-	>1 syllable, 2 articulations	27%	12
-j-	>1 syllable, 1 articulation	94%	17
-j-	>1 syllable, 2 articulations	6%	1
others	>1 syllable, 1 articulation	14%	100
others	>1 syllable, 2 articulations	74%	516

Table 9.11: Comparison of the percentage of single and double articulations in SMLS from words of more than one syllable, for the initial letters "h", and "j" and other letters.

Clearly, the form of manual letters influences the number of articulations in a SMLS. The data presented here has shown that the form of the English word may influence the form of the SMLS, especially the number of articulations. It has also shown how BSL morphology and phonology influence the form of the SMLS. Another factor in the formation of SMLS will now be considered. This factor is the role that the form of the manual letter plays in the formation of the SMLS.

9.2.4 The Influence of the Form of the Manual Letter in Creation of SMLS

The data from the See Hear! corpus also shows that the manual letters are not all equally productive in the formation of SMLS. Comparison of the more

productive manual letters with the less productive will show the influence of BSL phonology on the formation process of SMLS.

Established SMLS

In the See Hear! corpus, there were examples of 31 SMLS that are established in BSL. Fifteen of these belong to the semantic groups of measurement of time and space, amount, and family relations, which are particularly rich sources of signs using the handshape for the first letter of the English source word.

The letters used in these 31 SMLS in the See Hear! corpus are not evenly distributed. The distribution is as follows:

	Lexical items	Number of items
-a-	ANSWER* ANNIVERSARY AUTOMATIC*	3
-d-	*DAUGHTER**	1
-f-	*FATHER* (DADDY*) FRIDAY*	3
-g-	GOVERNMENT* GAME	2
-k-	KITCHEN*	1
-m-	*MONDAY, MONTH, MINUTE, MOTHER, MUMMY, METRE, MILE,* MEMBER	8
-n-	*NORMAL* NATURAL*	2
-p-	POUNDS PENCE PAGE	3
-q-	QUARTER QUALIFY* QUALITY	3
-t-	TOILET *TUESDAY**	2
-w-	*WEEK* WEDNESDAY*	2
-y-	*YEAR* YOUNG*	2

Table 9.12: Established SMLS occurring in See Hear! corpus.

(* indicates that the preceding sign is listed in the BDA BSL/English dictionary. Italicised examples are terms from the core semantic groups)

The letter "m" (or the manual letter -m-) is disproportionately productive. Two explanations seem plausible. The first explanation is that this disproportionate productivity is due to the semantic categories most likely to give rise to SMLS. Of the 31 established SMLS occurring in the See Hear! corpus, 15 are drawn

from the semantic groups of measurements of time and space, and family relations. Of these fifteen, seven are derived from English words that begin with the letter "m". There seems to be a disproportionate number of *English* words in these semantic groups beginning with the letter "m". Only MEMBER does not belong to these semantic groups. If this is the explanation then the influencing factor is from English.

The second possible explanation lies in the form of the manual letter. It has already been noted in section 4.1.1 (p117) that, although the citation form of -m- gives the active hand using the index, middle and ring fingers, this frequently becomes modified to an unmarked 'B' hand, creating a hand-arrangement that is symmetrical. It is possible that a sign involving 2 'B' hands is so convenient to articulate that potential homonyms can be risked. If this is so, BSL forces are influencing the process. Evidence in the next section suggests that English is the dominating factor here.

Further information about the use of different manual letters in "established" SMLS comes from the place-names study (study 4). The percentage of responses of first letter responses for all place-names beginning with each letter was calculated.

The responses were not evenly distributed, with percentages ranging from as low as 13% for -o- to 48% for -g-. That is, 13% of all responses to place-names beginning with the letter "o" were SMLS, as were 48% of all responses to place-names beginning with the letter "g".

Importantly, when the "alternative" .O. first letter signs are added to the score of words beginning with the letter "o", the percentage of responses increases to 24%. This is further evidence to suggest that the phonology of BSL - in this case, the handshape involved - controls letter selection in the word-formation processes, over and above any influences that English may have.

The complete results may be found in Table VII.1 in Appendix VII.

Nonce SMLS

The letters involved in nonce SMLS are also not evenly distributed. The distribution may be found in Table VII.2 in Appendix VII. However, the proportion of English words beginning with each letter is also not evenly distributed. In order to see how meaningful this uneven distribution of nonce SMLS is, it is necessary to compare the distribution of letters in nonce SMLS with the distribution of English words beginning with each letter of the alphabet.

The proportion was calculated using the Shorter Oxford Dictionary. The number of pages allocated for each letter was noted and this expressed as a percentage of the total number of pages for all letters. This percentage was then multiplied by the total number of nonce SMLS (and divided by 100) in order to make a comparison between the number of words beginning with each letter in the dictionary and the number of nonce SMLS for each letter in the corpus.

The distribution of types and the expected distribution of words beginning with each letter may be found in Table VII.2 in Appendix VII.

A chi square analysis revealed that the two distributions were not the same (chi square = 49.44, df = 24, $p<0.01$).

By far the largest chi square value was for the letter "C" and the corresponding manual letter -c- used in SMLS. There was a larger proportion of SMLS using the -c- handshape than there is of words in English beginning with the letter "C". Removal of C/-c- from the chi square analysis reduced the significance to $p<0.05$.

It is clear that this difference needs to be explained by a process operating within BSL. If there was nothing special about any of the handshapes, there would be a similar proportion of SMLS using the -c- handshape to words in English beginning with "C". It cannot be coincidence that the largest number of SMLS are made using the only one-handed letter of the manual alphabet. It is well-known that the one-handed nature of letters allows greater freedom of movement than in two-handed letter handshapes. Kyle and Woll (1985) have also shown that there are more signs in BSL that are one-handed (31%) than two-handed with one active hand and one passive hand (25%). Diachronic studies of sign vocabulary have demonstrated that two-handed signs have a tendency to become one-handed over time (Kyle & Woll, 1985).

Given this finding, disproportionate productivity of the -c- handshape can be predicted in other manual letter loans which have some added movement or change in location. That this is also the case for restructured SMLS will be shown in section 9.3 (p385).

The other outstanding score in the chi square test was for S/-s- where there were fewer SMLS than would be expected. Removal of "C" and "S" rendered the chi square insignificant, showing that they are responsible for the differences between the two groups.

The disproportionate numbers of -s- SMLS and words beginning with "S" need explaining. It is also in the lowest quartile of letters providing first letter signs in this place-names study, discussed in section 8.3.1 (p286). Clearly there is something about the -s- handshape that precludes its frequent use, despite its relatively frequent occurrence in English.

A large number of words in English begin with "S". This is demonstrated by the fact that it is the only letter for which the OED allocates a whole volume. If there were no influence of the form of the handshape on the creation of SMLS, there should be large numbers of SMLS using the -s- handshape. The comparatively small number is further evidence that there is something about the handshape that is causing the discrepancy. The reasons for this have already been considered in section 8.3.1 (p286). A combination of three factors is likely to curtail the use of -s-. These factors are: the marked 'I' handshape; the marked interlocking hand-arrangement; and the fact that the alternative to the interlocking hand-arrangement is one in which the small surface areas of the finger-tips touch.

The observed and expected frequencies for the manual letters -q- and -w- were almost identical, despite the fact that the hand-arrangements are interlocking. This need not suggest that the inter-locking is not limiting the use of -s-. The number of SMLS using the manual letters -q- and -w- was small (two and ten,

respectively) so the number of possible occurrences of SMLS is low enough for there to be no need to limit them.

The results from this test also demonstrate that the disproportionately productive manual -m- discussed earlier in the section concerning established SMLS is caused by the English words gathered in the semantic groups where SMLS are common. If there were something special about the handshapes and hand-arrangement of -m-, there should be a high score of SMLS using -m- in the nonce formations as well, and there is not.

Simple SMLS are prevalent in BSL. Their formation is based firmly on the orthography of the English word. Although English is the dominant language controlling the handshape of the sign, the form of the manual letter does seem to have some influence on a SMLS, and certain grammatical and other factors influence the number of repetitions of the first letter.

There are other SMLS, however. These have been restructured in ways similar to the restructuring of manual letters in restructured fingerspellings discussed in section 8.5 (p310). Many of these restructured SMLS have had extra movement imposed upon them. This movement is outside any influence of English and is very much a part of BSL sign formation.

9.3 RESTRUCTURED SMLS WITH EXTRA MOVEMENT

SMLS often have an extra movement added to them. This extra movement may be an important criterion for their acceptance in BSL, although the ultimate decision on their integration must be sociolinguistic, not entirely linguistic. For example, many signs invented by hearing people may follow BSL sign formation rules but still be rejected by deaf signers.

This added movement may have morphological significance in itself or simply be added to aid disambiguation of potential homonyms, and be meaningless alone. As was mentioned in section 9.2.3 (p360), Woll (1983) has claimed that acquisition of a movement is a way of preventing too many homonymous forms developing.

Most linguistic processes in BSL work towards simplification and conventionalisation (Kyle & Woll, 1985). However, in SMLS, the trend could be towards more complex forms. There are three possibilities here.

1) If the sign arose initially as a single letter and later acquired disambiguating features, then the process works against the trend of simplification.

2) If the sign has become greatly simplified from the full fingerspelling to a SMLS (an extreme case of the process proposed by Battison) simplification has occurred here too, even if the sign has subsequently become more complex by the addition of movement.

3) The third possibility is that the sign arose as it is now, with its extra movements built into it from the beginning.

The simple SMLS discussed in section 9.2 (p339) appear to have no features of restructuring (apart from repetition of articulation, perhaps) to distinguish them from an intrinsically meaningless manual letter. Some of these signs seem to be homonyms on the hands (eg MOTHER and MEMBER which both are realised as the manual letter -m-, articulated twice). For many of them, however, disambiguation comes through lip-patterns or repetition of the letter. Those that are true homonyms are rare and are as easily distinguished by contextual use, just as homonyms are in any other language.

Again, it is not possible to say (without further research) if there were once several homonymous simple SMLS which were then disambiguated by the addition of movement or if the signs originally arose with other features and no threat of ambiguity. Certainly, some simple SMLS have existed over 100 years, and a few over 150 years, and show no signs of having evolved. However, two signs do suggest that the original simple SMLS subsequently acquired an extra movement.

GOLD is made with the -g- handshape which then incorporates a different movement. An entry in the "Dictionary of D and D Signs" (1895) gives "gold" as the simple duplication of -g-, demonstrating that the original sign involved the letter handshape with no extra movement . Today it is made with the -g- handshape followed by a movement glossed as GLITTER. Ash's "Guide to Chirology" (1895) gives "England" as a single articulation of -e-. This manual letter has since acquired a movement of the active hand moving back and forth over the passive hand.

An example of extra movement preventing homonyms in BSL today can be seen in signs which are all based upon the manual letter -f- : FRIDAY , FEBRUARY, FATHER and FAMILY . In FRIDAY the active hand rubs the passive hand in small circles, while in FEBRUARY the fingers of the active hand rub up and down along those of the passive hand. In FAMILY, the whole -f- hand-arrangement circles, and in FATHER the -f- has zero movement but is repeated. (See video reference 9.2.) It is important to bear in mind that all four signs will also usually be distinguished by context and lip-pattern. Unfortunately, the limited historical records available give no clue as to when these restructured movements were acquired, although, as mentioned in 9.2.1, FATHER may once have been associated with a non-derived sign.

In other signs the change in movement may have morphological significance itself. In some of these signs the movement is added to the hand-arrangement itself, eg COFFEE is made with the -c- handshape near the mouth with a movement incorporating the meaning of drinking. In other signs, the manual letter is followed by a sign, creating a compound sign, eg QUIT which involves the -q- handshape followed by a quick movement of the active hand away from the passive hand, carrying the meaning of leaving.

These signs differ from events in which the first letter of an English word is signed, followed by a synonymous non-derived sign, such as -c-CONVOY. In the case of QUIT (or POLYTECHNIC, mentioned earlier), the sign is a compound sign consisting of a fingerspelled letter and a sign, creating a new sign with a different meaning. In the case of CONVOY, no compound is produced and the two are intended to function as synonyms.

In other instances, the letter may acquire movement external to the manual alphabet, but part of BSL morphology. In SMLS verbs such as PROPOSE and REPRESENT, the letter handshapes may be moved in a way similar to the way other directional verbs are moved. Some of these verbs have noun forms that also move in a similar way to the verbs. For example PROPOSAL, RECOMMENDATION and NOMINATION have the same movement as the citation form of the verbs PROPOSE, RECOMMEND and NOMINATE (i.e. first person to second person).

There is evidence from other restructured BSL SMLS that movement in a handshape may replace repetition of the manual letter. In SMLS that have some special movement, the specialised movement seems to replace any repetition (eg QUALIFY/QUALIFICATION can be articulated as a -q- handshape drawn in towards the body and FAMILY involves the -f- handshape, circled).

Battison (1978) has remarked that in ASL phonology, signs with their own internal movement lose that movement if a grosser movement of the hands is imposed upon the sign. For example, in the ASL sign DISCUSS, the index finger of the active hand taps the up-turned palm of the passive hand. If the sign is inflected to incorporate information about the object (eg "I discuss with you"), both hands move from the signer towards the syntactic location of the object, and the internal movement of the tapping of the index finger ceases. In other words, there cannot be two different movements. Battison's example shows an occasion on which the added movement leads to the loss of the original internal movement. A similar process is seen in BSL, for example, the sign SHARE. In the citation form of the sign, the active 'B' hand "chops" the palm of the passive hand several times, each time, moving clockwise round the passive palm. When

the sign is used to mean "Share with everyone", both hands are moved through grammatical space, and the internal movement is lost or reduced.

From this, it may be seen that the restructuring movements added to these SMLS are in keeping with other phonological processes in BSL.

This addition of movement was also seen in responses in the place-names study, demonstrating, again, the influence of BSL word-formation processes. The overall number of signs given with extra movement was not large. There were only 26 occurrences in total (11 from deaf subjects and 15 from hearing subjects). This excludes responses that were counted as already existing signs (eg shaking -w- for Worthing as WORTH). The movements were either shaking letter hand-arrangements, or circling the hands, or moving the hands downwards or outwards. Many of the movements created signs that were homophonous with existing lexicalised first-letter signs. For example, place-names beginning with "q" elicited responses of both moving the -q- down or drawing it into the body (as in QUALIFIED), -w- was shaken (as in WORTH), and the active hand of the -p- was twisted (as in POINT). Responses involving the manual letters -c- and the "alternative" .O. were moved out from the body, shaken, or moved in circles in a vertical plane. This last added movement only seems to occur in one-handed manual letters in SMLS, not in two-handed manual letters.

Many of the movements described by Battison for lexicalised fingerspellings are also seen in SMLS that take additional movement. However, in BSL SMLS, there is also the possibility of an internal movement of the two hands with respect to each other within the hand-arrangement. This is not possible in ASL because all the manual letters are one-handed.

Letter	SMLS	Number of types
-c-	COLLEGE COFFEE* COMMITTEE O'CLOCK COLOUR COMMUNICATION COMMUNITY COURSE CONVENTION COMPUTER COUNTRY CLASS COMFORTABLE CONGRESS COUNCIL* CONFIDENCE CLUB COUSIN	18
-e-	ENGLAND* EASTER	2
-f-	FAMILY FRIDAY* FELLOWSHIP FINAL	4
-g-	GOLD GROUP GENERAL	3
-m-	MADNESS MILLION MOTHER	3
-p-	PAPER* POINT* PROPOSAL PROMOTE* POSITION	5
-q-	QUALIFY* QUALITY	2
-s-	SILVER*	1
-w-	WORTH*	1

Table 9.13: Established SMLS with added movement, or change in location occurring in See Hear! corpus.

(* indicates these signs are also found in the BSL/English dictionary)

Table 9.13 above shows the established SMLS involving letters with special movement or a change in place of articulation in the See Hear! corpus. As with the simple SMLS, there was again an uneven distribution of letters.

The manual letter -c- is disproportionately productive. This is most easily explained by the fact that it is a one-handed letter and so can most easily be articulated in other locations or moved during articulation - in fact it would seem that -c- cannot be articulated alone without some form of movement, albeit slight. Brennan, Colville and Lawson (1984) make a similar observation upon the productivity of the manual letter -c- .

The manual letter -p- is also very productive. Some of this may be explained by the convergence of BSL sign features and the hand-arrangement of the manual letter -p-. The handshape of the active hand is one used as a size and shape specifier (S.A.S.S, see eg Baker & Cokely, 1980, Brennan, 1992) for very fine manipulation of small objects. The same handshape as the one used for -p- is also used in signs such as SPOT and DETAILS. Consequently, POINT, PAPER and POSITION could be explained by the convergence of the S.A.S.S handshape and the initial letter of the English source word. There is also a group of signs in BSL implying increase which involve the active hand rising up the palm and fingers of the passive hand, such as INCREASE, IMPROVE and DEVELOP. The hand-arrangement of -p- easily allows the signer to raise the active hand from the base of the index finger of the passive hand to the top of the finger to create the citation form of -p-, thereby incorporating the concept of increase used in BSL signs. This way PROMOTE has features of both an initial manual letter and a BSL sign.

It was mentioned in section 9.0 (p331) that the movement that is added to SMLS may be of different types. The movement may have no separate meaning, or may have be motivated in some way, or may actually be the movement of another, related and non-derived sign. These different types of movement will now be considered.

9.3.1 Single Manual Letters with Movement that has no Separate Meaning

A single manual letter sign may have an extra movement added to it that has no additional morphological meaning. Addition of this kind of movement was noted by Battison (1978) in many lexicalised fingerspellings. He described additional movements including a nodding movement; a movement downwards; movement forwards and down from the body; up and down alternating movement; and circling movement. Battison, however, was concerned with signs using at least two manual letters. He was not concerned with SMLS.

Isaac Peet described this same sign-formation process within ASL in 1868. Peet commented on the current usage of signs for which the initial letter handshape was so distinctive that the letter itself should be seen as the base of the sign. He cited WEDNESDAY, PEOPLE, VANITY and some signs for colours. For these signs the meaning came mostly through their usage and not from any particular meaning attached to the movement. For example, the ASL sign WEDNESDAY has a handshape from the manual letter .w. and moves in a small circle in a vertical plane. There is nothing about the small circle in the vertical plane that is necessarily linked to days of the week.

At least one sign of this type, using the one-handed manual alphabet has been borrowed into BSL. The dialect sign FRIDAY used by many Scottish and Northern Irish signers uses the 'V' handshape touching the ipsilateral and contralateral sides of the mouth. This is borrowed from Irish Sign Language, which in turn borrowed it from French Sign Language, where it is derived from VENDREDI ("Friday").

Generally, however, this process does not appear to be very productive in ASL, except for the formation of name-signs (Supalla, 1992). The process of "initialisation" is far more productive, and will be discussed in more detail in section 9.3.3, p391.

Signs involving movement that has no meaning by itself occur in BSL for signs using both one handed and two handed letters. Apart from -c- the only other one-handed letters that may be considered manual letters in BSL are the old Scottish -q- and the "alternative" .L. and .O.. The old -q- is no longer used as a letter in fingerspelling, but groups of signs based on this initial handshape exist and it cannot be coincidence that so many of the English translations (eg QUESTION, QUARTER and QUIET) start with the same letter. The "alternative" manual letters have many signs synonymous with English words beginning with the same letter.

In QUARTER the old -q- moves in a small circle in the vertical plane. In QUIET, both hands are used and they move apart in neutral space towards their ipsilateral sides. In LIVERPOOL, the "alternative" .L. is held at shoulder height at the ipsilateral shoulder and shaken with a sideways movement. In LUCK, it moves downwards away from the nose.

It has already been mentioned that the letter -c- must be made with some form of movement, and COUSIN, COLOUR, and COUNTRY all come into this category of signs made by adding a meaningless movement to a manual letter. These three SMLS move in small circles in the vertical plane, or may be moved into and away from the body in a small shaking movement.

The following SMLS show the two ways in which movement can be added to manual letters during restructuring. In the first two examples, there is internal movement added. In the third example, the whole hand-arrangement moves.

ENGLAND (-e-, index finger of active hand rubs along index of passive hand)
FRIDAY (-f-, fingers of the active hand rub those of the passive hand with a small circular motion)
MILLION (-m- moves away from the body)

9.3.2. Letter Combined with a Sign Movement Radical

Signs formed by letter handshapes taking on a movement with a meaning related to the concept are common in BSL. The movement may either follow the handshape or be combined with it. These signs look similar to the initialised signs described in the next section, but they are formationally very different. These signs are far less common in ASL. Examples of signs in this category include:

Manual letter handshapes articulated with movement:

POINT (right hand of -p- twisting on index finger of left hand. Emphasising one point)

QUESTION (obsolete one-handed -q-. Drawing a question mark)

FINAL (-f- handshape rising as though through a league table)

GROUP (-g- handshape circling to delineate a group)

Manual letters followed by movement:

QUEUE (-q- followed by LINE-OF-PEOPLE)

NATIONAL (-n- followed by COUNTRY)

GOLD (-g- opening to GLITTER)

SILVER (-s- opening to GLITTER)

QUIT (-q- active hand leaving the passive hand in a representation of quitting)

These signs are not necessarily recent. Nineteenth century records of BSL give the sign QUESTION using the old one-handed -q- exist in an Irish dictionary from the turn of the century.

Peet (1868) also described signs of this type which involved moving the handshape of the initial letter of the word in a way that gave the handshape peculiar meaning and it took on qualities expressed by other signs. PHILOSOPHY involved moving the manual letter .p. in a way which suggested emanation of thought, and in NATION the .n. of the dominant hand traced a small area of a 'globe' made by the fist of the non-dominant hand (a sign attributed to Thomas Gallaudet).

Peet made it very clear that the success of these signs depended entirely on acceptance by the deaf themselves. His pupils rejected many of the signs he offered them and suggested modifications. The pupils at Peet's school also offered signs for use which, if they were suitable, rapidly passed into usage.

A large proportion of the signs in BSL that combine letter handshape and motivated movement (and/or location) involve the letter -c- because of the freedom of movement a one-handed letter permits and the apparent rule that a one-handed letter must be moved. Examples include CONFIDENT, COLLEGE, COMMITTEE/COUNCIL, COMMUNITY, COURSE, COMPUTER and CONVENTION/CONGRESS)

9.3.3 Sign Radical with Letter Handshape (Initialised signs)

Initialised signs have a sign base with a given movement and place of articulation and a handshape which is not based on the manual alphabet. The handshape of the initial letter of an English word closely synonymous to the sign is imposed upon this base. For example, in ASL, the sign GROUP may be made with a manual letter .c. handshape to mean CLASS or a manual letter .t. handshape to mean TEAM.

This method of expanding a sign language's vocabulary is commonly used in ASL by hearing educators and interpreters, although deaf people may be involved in their design or judgements of acceptability (see, for example, Rasmus & Allen, 1988, and Caccamise, 1989).

This process of adding manual letter handshapes to existing signs was operating in FSL by the early nineteenth century. Bebian, in 1817, complained about the creation of signs whose meaning depended on the fingershape indicating the initial letter of the word they were supposed to recall such as "vin", "tante" and "jeu". He dismissed this process of sign formation as a "silly gimmick" but he did admit that a number of these silly gimmick signs were becoming accepted and used generally. He regarded this to be a corruption of sign language by spoken language.

Pelissier (1856) described French signs with a similar history. Pelissier's dictionary of signs of 1859 contains signs probably copied from Sicard's "Theorie des Signes" published in 1818. This contains examples of signs in which CONTRE, VIN, JAUNE, TOUS, JAMAIS and CENT are made with signs having the handshapes of the initial letters of the French words, and movements and locations motivated by the meaning of the referent. JAMAIS is made by moving the .j. hand-configuration in a large cross, VIN is made with the .v. hand-configuration by the mouth and CONTRE moves the .c. hand-configuration away from the body.

See figure 9.1, on page 432, from Pelissier's "Des Sourds-muets" (1856).

This process of sign-formation has often been used deliberately by educators to expand a sign language's vocabulary. Although it is often instigated by educators or other hearing people, ultimately a sign will not come into general use unless it is considered acceptable by deaf signers.

Peet (1868) felt that abstract terms and signs for English synonyms, or near synonyms were particularly lacking in ASL. English had a large vocabulary and fingerspelling allowed signers to express English words. Fingerspelling, however, was much slower and more inconvenient than signing. As a solution, Peet used initialised signs to expand ASL vocabulary. He was aware that signs did not need to be "naturally expressive" (i.e. iconic) but only simple, easy to remember and, most importantly, accepted and used by deaf people. His solution was to use already existing signs as a base and impose upon them the handshape of the manual alphabet that corresponded to the first letter of the English word the sign was to represent. For example the sign glossed as LOVE could be modified to be produced with a -d- handshape for DESIRE and a -b- for BENEVOLENCE. To avoid too many homonyms developing (as in Peet's example of AID, ASSIST, and ADVANTAGE which were all realised with the sign HELP made with the -a- handshape) signs could also have slightly modified movements.

Pelissier's dictionary (1856) also gives examples of these signs. PENDANT, DURANT, and TANDIS were all made with the same movement and place of articulation, and differed only in the handshapes of the .p., .d., and .t. hand-configurations.

Although initialised signs are fairly common in ASL and other sign languages with one-handed alphabets(eg Irish Sign Language), in BSL the combination of existing signs and letter handshapes is far less productive. This is because of the constraints imposed by the two-handed nature of the alphabet.

Johnston's dictionary of Australian signs (Johnston 1990) gives many devised initialised signs but only for letters from the one-handed manual alphabet which is used in some schools in place of the traditional British two-handed alphabet. This suggests that the constraints against initialised signs lie in the form of the manual alphabet rather than the language involved.

Evans (1978) has observed that attempts to devise initialised signs in Britain have largely failed and blamed this on two basic differences between one-handed and two-handed manual letters. Firstly, a one-handed letter configuration can be applied to either a one-handed or two-handed sign, but a two-handed letter arrangement cannot be applied to a one-handed sign. Secondly a two-handed formation would restrict the full movement of some signs.

A far more productive process in BSL involves the first letter of a specific English word and then a more general sign eg "creche" could be glossed -c- CHILD LOOK-AFTER, and "polytechnic" as -p-UNIVERSITY. This strategy has been discussed in more detail in section 8.10, p322.

In spite of the restrictions imposed by the two-handed manual alphabet, a few signs do contain the handshape of other manual letters. Examples include:

COMMUNICATE (EXCHANGE-INFORMATION with a -c- handshape)
CLASS (GROUP with -c- handshape)
WORTHWHILE/WORTH (VALUE with -w- handshape)
URGENT (QUICK or EMERGENCY using the -u- handshape).

In all these SMLS there is only a small difference between the manual letter handshape and the handshape of the non-derived sign. Once again, then, the form of the manual letter is important in dictating the way that movement is added to the manual letter.

9.4 LOCATION WITH RESPECT TO THE PASSIVE HAND

In ASL, fingerspelling occurs in a designated signing space at the ipsilateral shoulder. Any movement of a letter hand-configuration away from this area violates the rules of ASL fingerspelling and can be seen to be an indication of restructuring.

In BSL, there is no immediate parallel. BSL fingerspelling occurs in neutral space in front of the signer and so, in some ways has more freedom of movement than ASL fingerspelling. However, there is a recognisable area within neutral space in which fingerspelling occurs, and manual letters or full fingerspellings may be placed within, or move through, the rest of the signing space. For example, SMLS nouns may be placed within topographical signing space as part of normal BSL placement. SMLS verbs may move through the topographical or syntactic signing space, according to BSL verb morphology. This has already been discussed in sections 4.7.2 (p149) and 8.4.2 (p304).

Aside from the position of the whole SMLS, it is possible to argue that BSL manual letters have two locations: the location of both hands relative to the body; and the passive hand of the manual letter which serves as the tab (Stokoe

1965) for the active hand. This bond with the passive hand tab may allow BSL manual letters to be articulated in more *locations* within neutral space, but also make them more constrained than ASL letters in any possible *movement* they may make.

There are 3 possible occasions in BSL when manual letters leave this neutral space:

1) SMLS are placed meaningfully within the signing space through incorporation of BSL morphology.

2) The passive hand is not used and the active hand changes location as it contacts another part of the body.

3) The single active hand remains in the area of neutral space in front of the body, without any passive hand tab. For example, in conversational signing it is possible to articulate the SMLS MONDAY, with only the active hand. There are also established SMLS with an added movement replacing the passive tab, eg SATURDAY.

These signs have no parallel with ASL or any language with a one-handed manual alphabet.

There are very few of these signs that can be traced for sure back to the manual letters. Examples include:

NAME (active hand of -n- moved away from forehead)

SATURDAY (active hand of -s- circled at waist height.)

MOTHER (active hand of -m- touching the temples)

A few signs appear to be motivated in a way similar to the initialised signs that are so common in some sign languages using one-handed manual alphabets. These signs use the active handshape, articulated against a body part other than the passive tab hand, but have some extra meaning derived from their location. One such sign is REASON, articulated with a curved index finger (derived from the manual letter -r-) in place of the extended index finger used in the sign usually glossed as REASON or WHY. Another is the sign MENINGITIS, articulated with the active hand of the manual letter -m- brushing from the temple to behind the ear - a movement delineating the location of the meninges involved.

These signs, however, seem relatively rare, and are often heavily influenced by the signing of educators.

Other examples *may* include:
SHEEP (active hand of -s- circled at the temples)
VIDEO (both hands taking the 'V' handshape of the active -v- hand and circling in neutral space reflecting the movement of video tape spools)

However, it may simply be coincidence that the iconic handshape is the same as the manual letter handshape, and VIDEO may be a loan from ASL.

The manual letter -c- is free to occur in locations other than neutral signing space because it is already free from a manual tab, and it is not constrained to a specific area in the way that manual letters from the ASL one-handed manual alphabet are. For example COFFEE uses the -c- handshape at or near the

mouth; COLLEGE may use the -c- handshape near the temple; and CONFIDENCE uses the -c- handshape on the chest.

Other SMLS which usually use the passive hand as a tab may exceptionally be made using other locations as the tab for the active hand. One deaf informant commented that she would sign -t-t- (TOILET), without the base hand but by touching some other part of the body instead. This is for modesty if she does not wish to attract attention to herself. The sign may be surreptitiously articulated on the hip or even on the back of the shoulder.

Although change in location or of movement is possible, palm orientation of a single manual letter cannot change if that change in orientation is contrastive, creating a new meaning. For example, it might be acceptable to articulate -g- repeatedly in a circle in a horizontal plane, as was signed by one deaf consultant in the interviews for this research, while describing the governments of Europe. It was not acceptable to this consultant to articulate these -g- manual letters in a circle in a vertical plane, left to right across the body, as this would change the orientation of the hands, creating a different sign that may be glossed as HAMMER-IN-NAILS (see video reference 9.3).

When other features of BSL are added to the manual letter, it may be an indication of greater integration of the loan into the language. It is important to remember, however, that as with all these changes to the manual letters, the changes alone are not enough to make the sign a part of the language. The acceptance of the sign is dependent upon sociolinguistic forces. For example, a single manual letter may be used as a verb according to the morphological rules of BSL, but not be accepted as a BSL sign. Thus, if a signer were to sign

TRAVEL by moving a -t- handshape through space, it might follow the rules of BSL verb morphology, but still not be an accepted sign of BSL.

9.5 LOCATION AS A RESULT OF INCORPORATION OF BSL MORPHOLOGY

In theory, it should be possible to place noun SMLS anywhere in the signing space that a non-derived sign synonym can be placed. The results from Study 5 are useful in the discussion of this.

Sentences requiring nouns to be placed in different locations in signing space (eg several governments in Europe, or kitchens located on each of several floors) were rated by deaf and hearing BSL signers.

The average rating for acceptability of SMLS placed in signing space was lower than the average rating for non-derived synonyms, showing that the SMLS were more acceptable. The difference in average ratings was small (2.4 for SMLS and 2.6 for non-derived signs), but was significant ($t=2.5$, $df = 319$, $P<0.01$).

These results may seem a little strange, as one might expect non-derived signs to be more acceptable than SMLS. However, the difference arises because several of the non-derived signs are body-anchored, and cannot be placed in space. The average rating for sentences requiring movement of body-anchored non-derived signs (TOILETS, KITCHENS, and GOVERNMENTS) was 2.8, while that for non-body-anchored signs (KETTLES, GARAGES) was 2.2. This difference is significant ($t = 6.67$, df 99, $P < 0.001$).

There was no difference in the ratings for the SMLS that were synonyms of body-anchored or non-body-anchored signs, however. The average rating for SMLS glossed as TOILETS, KITCHENS and GOVERNMENTS was 2.35, and that for the SMLS glossed as KETTLES and GARAGES was 2.44.

This demonstrates that SMLS are sometimes more able to incorporate BSL morphology than non-derived signs are. In other words, once again, the form of the manual letters is important in the way that they may be used in sign formation. It must be remembered, however, that a more acceptable way to provide information about location in signing space is to use a locative index (Section 8.4.1, p303).

Other instances of SMLS being placed within BSL space have been observed in everyday conversation with deaf signers. In the sign glossed as EVERY MONDAY, the manual letter -m- was moved out from the signer's body, along time-line B (Brennan, 1983). In another instance, discussing a timetable, the signer also referred to every Monday, but moved the manual letter -m- down from head height to chest height, in the motivated sign related to the fact that the timetable placed all the Mondays in a column.

9.6 SUMMARY

The above section has provided evidence that BSL uses single manual letters to create signs based on English words. The signs created may be restructured in

several ways as the result of BSL sign-formation processes. The manual letters may be articulated different numbers of times according to the syllable structure of the English source word, and BSL morphology and phonology. BSL phonology also appears to influence which manual letters are most productive in the formation of SMLS. Other restructuring involves the addition of movement and the change in location of the manual letter. This addition may be motivated, carrying morphological information, or simply be an arbitrary phonological difference. Unlike the restructuring that occurs with fingerspellings, only location and movement can be involved in the restructuring process, and the handshape cannot be restructured. To restructure the handshape would be to lose the identifying feature of the sign.

The form of the manual letters in the British manual alphabet is a very important factor in the process of sign formation in BSL. It has been demonstrated that the movement within manual letters influences the number of articulations made in a sign. The hand-arrangements of the manual letters are a factor in their retention or deletion in an abbreviation, and their selection as SMLS. The two-handed nature of the majority of British manual letters leads to addition of movement in very different ways in sign-formation. One-handed letters and two-handed letters permit the addition of different types of movement, leading to different sign-formation processes in ASL and BSL.

Chapter 10

CONCLUSION

10.0 SUMMARY

Until now, there has been no detailed, linguistic description of the role of the manual alphabet in BSL. This dissertation has demonstrated that the manual alphabet is an important part of BSL, because of its use in both fingerspelling and BSL sign-formation. The use is not random, but governed by specific rules of BSL. The use of the manual alphabet to borrow from English is similar in many ways to borrowing between other languages.

The historical research has shown that the manual alphabet has changed from something used by hearing people for secrecy, amusement or piety, and introduced to deaf people as a means of reproducing English, to being a linguistic phenomenon that is an integral part of the sign language of most signers of BSL.

The use of the manual alphabet has often been seen as something exceptional, because it enables a language in a visual modality to borrow from a language that exists primarily in a spoken modality, via the written form of the spoken language. It has been demonstrated here that, in many ways, it is *not* exceptional. The borrowing that occurs through

fingerspelling is subject to the same structural and psycho-social constraints as the borrowing between any languages.

This may be seen particularly clearly in the findings concerning the constraints upon borrowing between word classes. The research reported here demonstrated that borrowing by use of the manual alphabet was not the same in all word-classes, and that verbs borrowed using the manual alphabet are very rare. However, it has also been demonstrated here that the constraints on loan verbs in BSL are basically the same as those operating on any structurally dissimilar languages, despite the seeming differences brought about by the different language modalities. BSL and English are structurally very different, and it seems to be this that accounts for the rarity of loan verbs using the manual alphabet.

This has important implications for sign linguists trying to build up evidence to demonstrate the linguistic status of BSL. It is further evidence that BSL is a natural language, but a minority language, subject to the same linguistic and sociolinguistic influences and processes as other minority languages. If BSL were simply another form of English, this difference in word-classes would not exist.

Further, it shows that BSL does borrow when it uses fingerspelling and the manual alphabet. If every instance were code-switching, there would be no structural constraints on word-classes.

This research has also described the different ways in which the manual alphabet is used. It is used for fingerspellings, but these fingerspellings

may be identified as occurring for specific reasons. The research here has identified different reasons for their use. They may be used as part of the borrowing or code-switching process, but also as core BSL vocabulary and for such purposes as register markers and euphemisms.

The manual alphabet is not simply used to represent whole English words during BSL discourse. The abbreviations made of the English words are not random, but are made according to identifiable principles. The SMLS that are created in BSL may be simple, or have added BSL phonology and morphology. Even the simple SMLS, however, may be restructured. These alterations are not random, nor are they exclusively tied to the orthography and morphology of English (although both these have some influence). Rather, considerable evidence has been presented here to claim that they are the result of the interaction of the form of the English word and processes of BSL.

The research here has shown that the restructuring occurs within the phonology and morphology of BSL. Deletion of manual letters, addition of movement, and other changes in the phonology and morphology of the fingerspellings and SMLS all occur within BSL.

Another important point to come out of this research is the variation in the use of the manual alphabet among signers. The way that the manual alphabet is used was shown to vary considerably according to the age of the signer and the influence of English upon their signing, as demonstrated by the amount of speech they use. Another particular distinction that became clear in the Place-names experiment is that

between fluent and non-fluent signers (as shown by the deaf and hearing subjects).

Linguists describing sign languages frequently use native deaf signers from deaf families as consultants. This is a very proper procedure. However, it is important to realise that these signers are only one part of the signing language community. Hearing signers are also important users of BSL. It has been shown here that their use of the manual alphabet is different from that of many native deaf signers, and that this difference can be attributed to the difference in skills, but also to the perceived acceptability of using the manual alphabet, and to the influence of English. Differences may be seen not only in the length of fingerspellings, but also in the ways that signs using the manual alphabet are formed from the English word.

10.1 FUTURE RESEARCH

Throughout this research it has become clear that there are many more unanswered questions related to the topic of the use of the manual alphabet in BSL, and the more general topic of the influence of the majority spoken language on sign languages.

It has become clear that the acquisition of fingerspelling by children growing up with BSL needs more investigation. Research work conducted in America, using the ASL manual alphabet has shown that

children's acquisition and use of fingerspelling can reveal a good deal about the way that children see the interaction between English and sign language, and fingerspelling, signs and the written word. The brief analysis of one British child reported here shows that signing children may have a very sophisticated idea of how to use the manual alphabet, but there is a pressing need to conduct detailed research in the area, preferably as a longitudinal study, involving children of deaf and hearing parents.

Another area that needs considerable research is that of the use of the manual alphabet in other registers. The work here has been based, in a large part, on a corpus collected from a specific register, that of signing on television. There is some research on social and regional dialects of British signing, but very little on register variation. Deuchar's work on BSL in the late 1970s was the last detailed research, and BSL has changed considerably since then. Research on register should study several signers of different social and regional dialects, signing in specific social situations. Any work on register variation would investigate several linguistic variables including signing style (such as speed of signing, clarity or well-formedness of the sign and size of the signing space), lexical choice, use of non-manual features and use of fingerspelling. The research here has shown that the use of the manual alphabet may be a sensitive marker of register, both in the amount of use of the manual lphabet and whether it is used for fingerspellings or SMLS of various /pes.

A third, important area that needs considerable further investigation is the relationship between non-manual features and the manual alphabet. This research has mainly focussed upon the manual aspect of signing, but has also demonstrated a close relationship between uses of the manual alphabet and non-manual features, especially mouth-patterns.

The relationship between use of the manual alphabet and non-manual features used as part of the morphosyntax of BSL has been touched on here, but further research into this area is needed before it is possible to describe the complex relationship between the two.

The use of mouth-patterns and the manual alphabet is a particular area of theoretical interest that would repay further research, because of the possibility that the signer is reproducing forms derived from English both on the lips and the hands.

For full fingerspellings, there is technically no reason why the mouth pattern of the English word need accompany the fingerspelling, yet it frequently does. Further research is needed to find out why this should be.

More interestingly, for abbreviated fingerspellings, and for SMLS, the English mouth-pattern is frequently necessary for the full meaning of the sign. The exact relationship between the English mouth pattern and the use of manual letters used in BSL is clearly complex, and outside any of the research presently being done in sign language linguistics. An understanding of the inter-relationship of these two features will greatly

illuminate the loan processes between English and BSL. In this situation there is information coming simultaneously from two channels, manual and non-manual. Both channels carry information originally from another language, and both are visual, but one is derived from the spoken form of the other language, and one from the written form. This research suggests that the information in both these channels is important for the meaning of the sign, but it is far from clear how they relate, and how much redundancy there is when both channels operate. Most importantly, there seems to be evidence that the use of mouth-patterns is not always simply to provide the same information on the mouth as there is on the hands.

The use of mouth-patterns is related to the register of the signing, and the degree of influence of English. The use of the manual alphabet is also related to these factors. What is not clear is the interaction between register and mouth-patterns and use of the manual alphabet.

Some of the data used in this research could be used to ascertain the relationship between mouth pattern and use of the manual alphabet. Lack of time precludes its inclusion in this study, but it could be done in the near future, and the information obtained could be the basis for interviews with deaf consultants and some further experimental work. This would further illuminate the role of the manual alphabet in BSL.

10.2 WIDER IMPLICATIONS OF THIS RESEARCH

This research has demonstrated clearly that the manual alphabet is an important part of BSL. Linguistically it can be incorporated into BSL, both phonologically and morphologically. BSL phonology is able to accommodate the forms of many uses of the manual alphabet.

Battison showed that lexicalised fingerspellings in ASL have been restructured to take on forms more like those of ASL signs. The research here has shown that many of the restructurings described by Battison also occur in BSL, although some are influenced by the two-handed nature of the BSL manual alphabet.

However, this research has also shown that these restructurings are not confined to established, lexicalised fingerspellings, but may be applied to any use of the manual alphabet.

Many of the barriers to the acceptance of uses of the manual alphabet in BSL are sociolinguistic, rather than linguistic. In fact this research has shown that, linguistically, it is possible to accommodate uses of the manual alphabet using several basic processes.

This dissertation has shown that the use of the manual alphabet varies widely among users of BSL. Attitudes to the manual alphabet, and English, as well as relative skills in English and BSL, all affect the usage

of the manual alphabet in a signer's production of BSL. This has meant that it is not possible to give clear, unequivocal statements about the ways that all signers use the manual alphabet in BSL. However, if the use of the manual alphabet is so varied, it brings into question the reliability of research in other areas of sign language research based on a few deaf informants. What may be observed in one or two signers, may not be observed in other members of the same broad language community.

The whole question of whose sign language is being studied is raised here. By excluding the signing of all but native deaf signers from signing deaf families, linguists are researching a small, and possibly unrepresentative population of signers.

The use of the manual alphabet may turn out to be a very sensitive marker of social and regional dialects, as well as registers. The findings here could be applied to other sociolinguistic studies of BSL, in which particular uses of particular forms of the manual alphabet would be indicative of a certain BSL variant.

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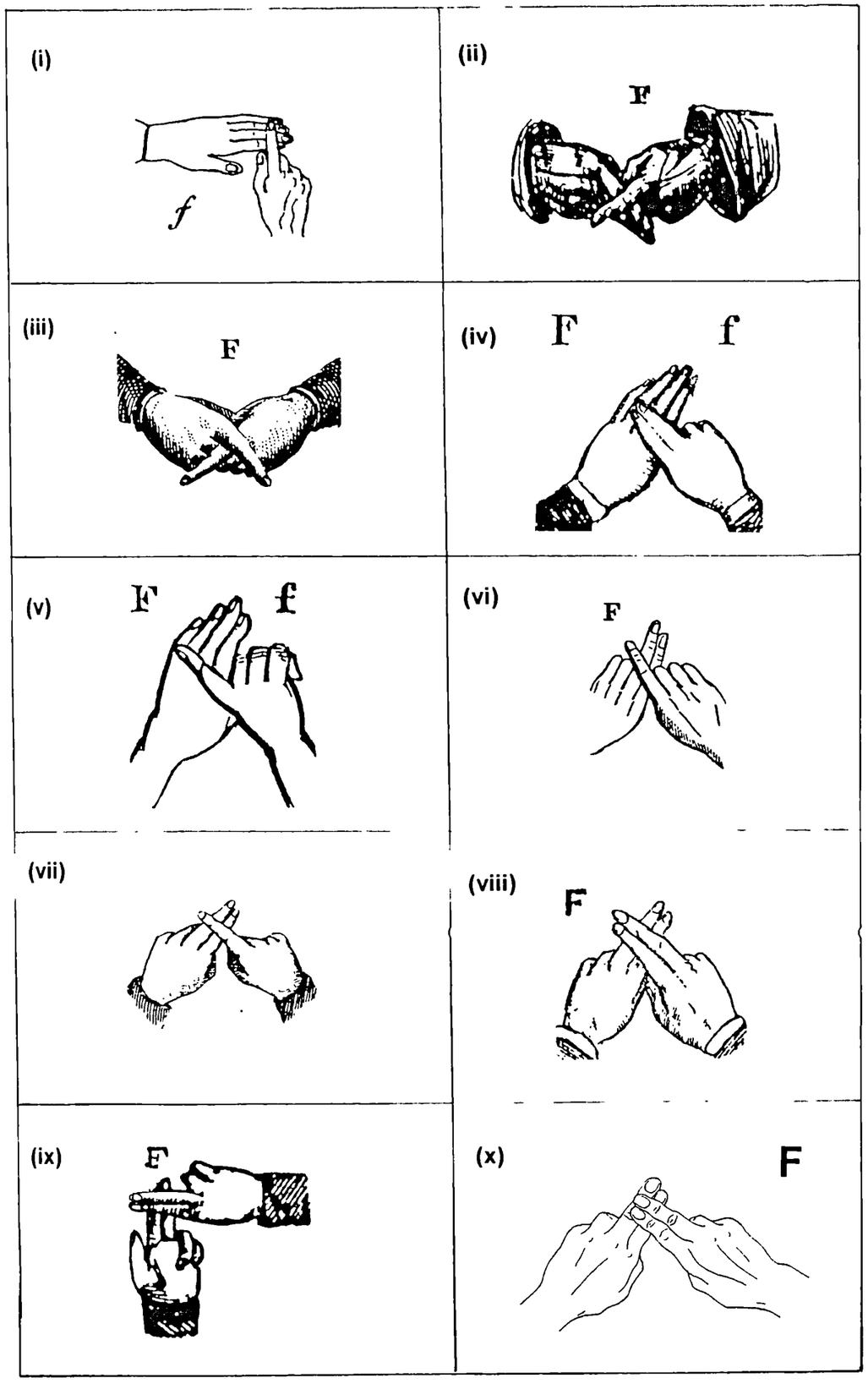


Figure 2.1: Variations of the letter representing "f".
(i) Digiti Lingua, 1698; (ii) Defoe, 1732; (iii) Watson, 1809; (iv) Arrowsmith, 1819; (v) Mrs Hippisley Tuckfield, 1839; (vi) Kitto, 1845; (vii) Rhind, undated; (viii) Smith, 1864; (ix) Anon, 1893; (x) The modern British manual alphabet.

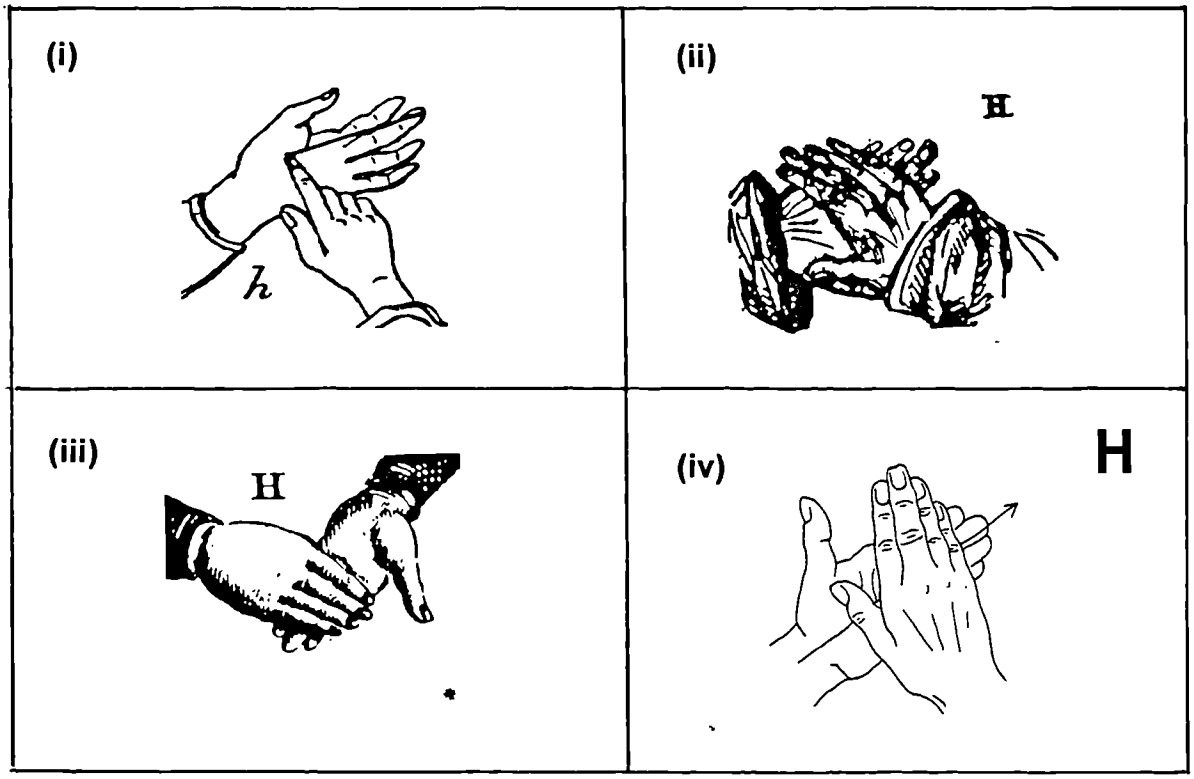


Figure 2.2: Variations of the letter representing "h".

(i) Digiti Lingua, 1698; (ii) Defoe, 1732; (iii) Watson, 1809; (iv) The modern British manual alphabet.

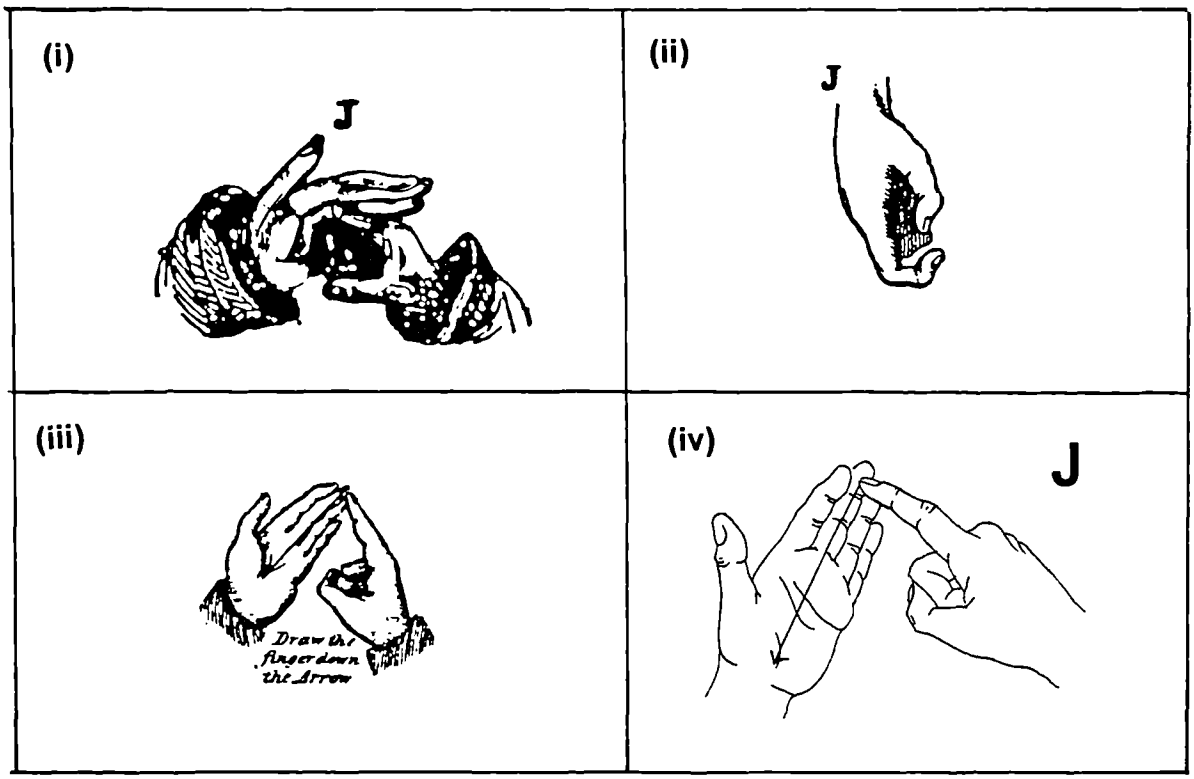


Figure 2.3: Variations of the letter representing "j".

(i) Defoe, 1732; (ii) Kitto, 1845; (iii) Rhind, undated; (iv) Arrowsmith, 1819; (v) Watson, 1809; (vi) The modern British manual alphabet.

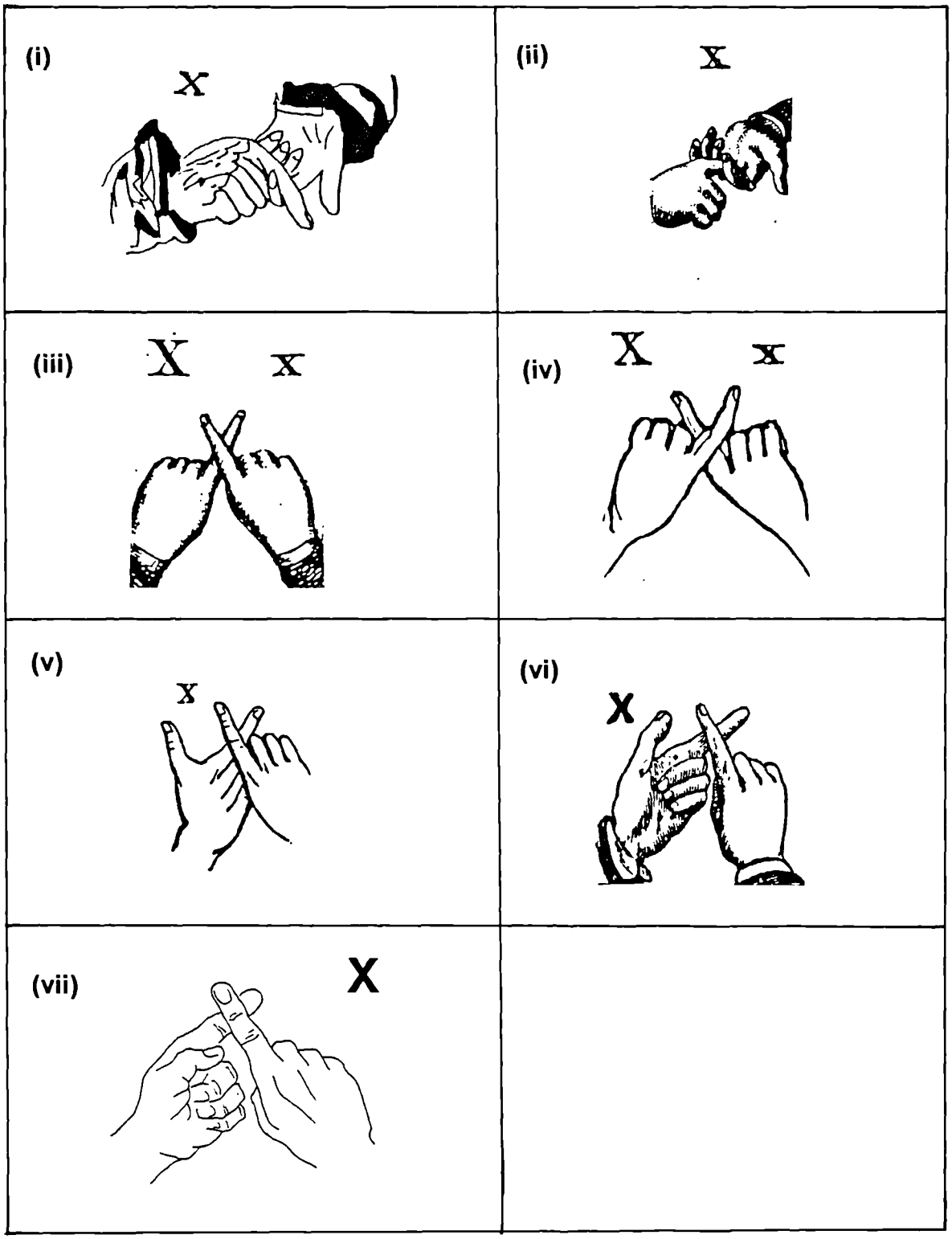


Figure 2.4: Variations of the letter representing "x".

(i) Defoe, 1732; (ii) Watson, 1809; (iii) Arrowsmith, 1819; (iv) Mrs Hippisley Tuckfield, 1839; (v) Kitto, 1845; (vi) Smith, 1864; (vii) The modern British manual alphabet.

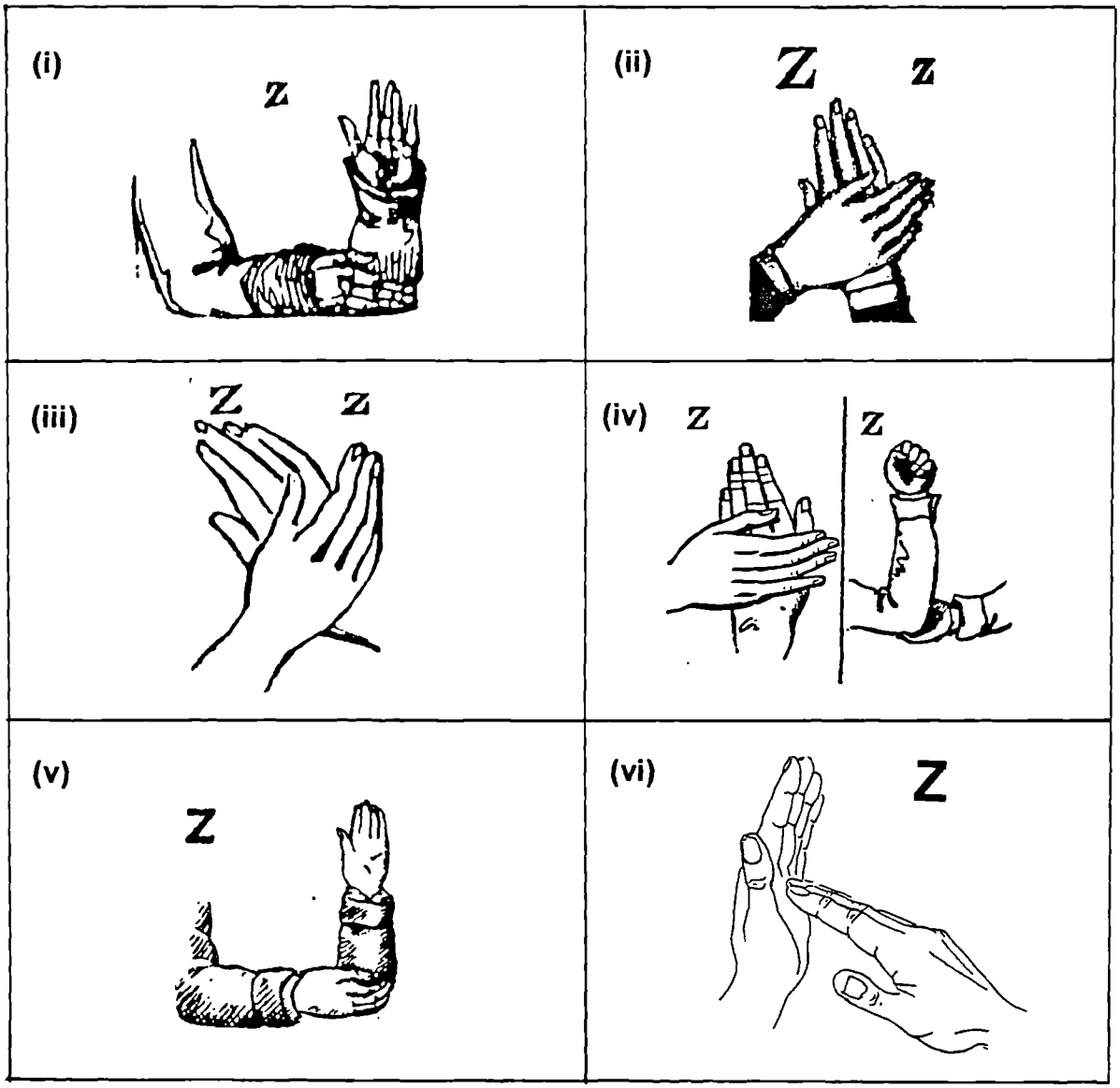


Figure 2.5: Variations of the letter representing "z".

(i) Defoe, 1732; (ii) Arrowsmith, 1819; (iii) Mrs Hippisley Tuckfield, 1839; (iv) Kitto, 1845; (v) Smith, 1864; (vi) The modern British manual alphabet.

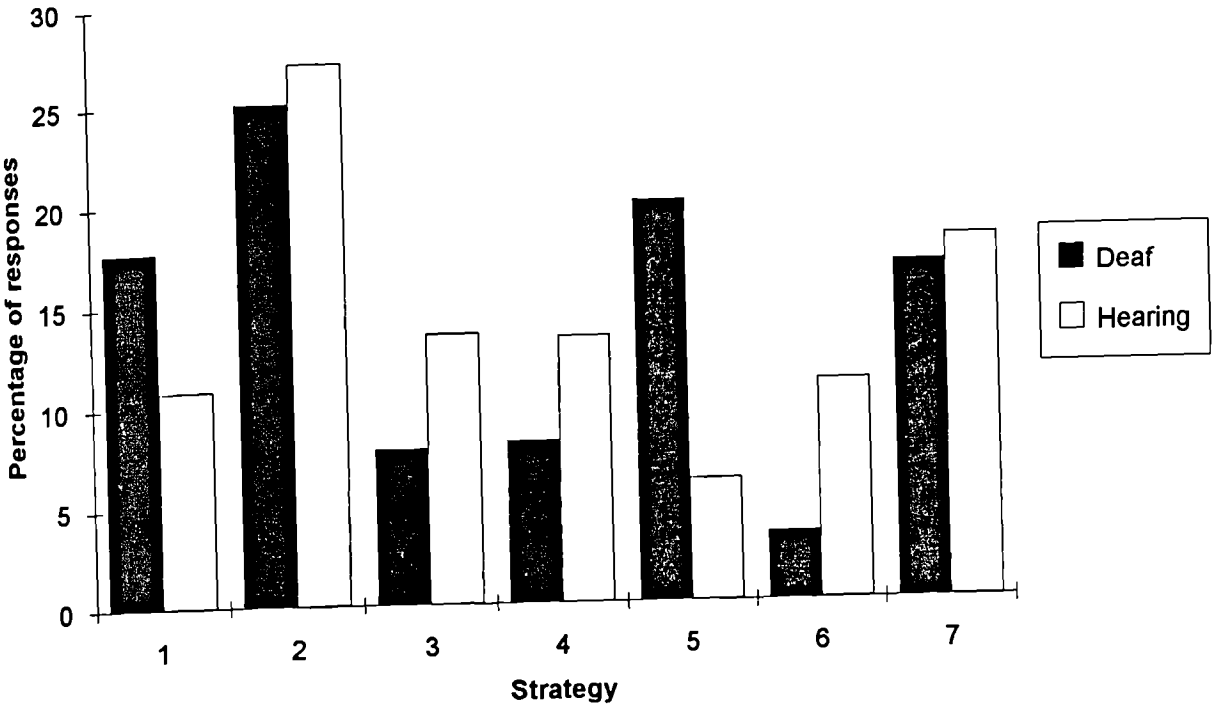


Figure 7.1: Strategies in the Place-names study

Figure 9.1: Page from Pelissier's "Des Sourds-muets" (1856). Numbers 1, 2, 3, and 6 show SMLS with movement.

APPENDIX I

ILLUSTRATIONS OF MANUAL ALPHABETS

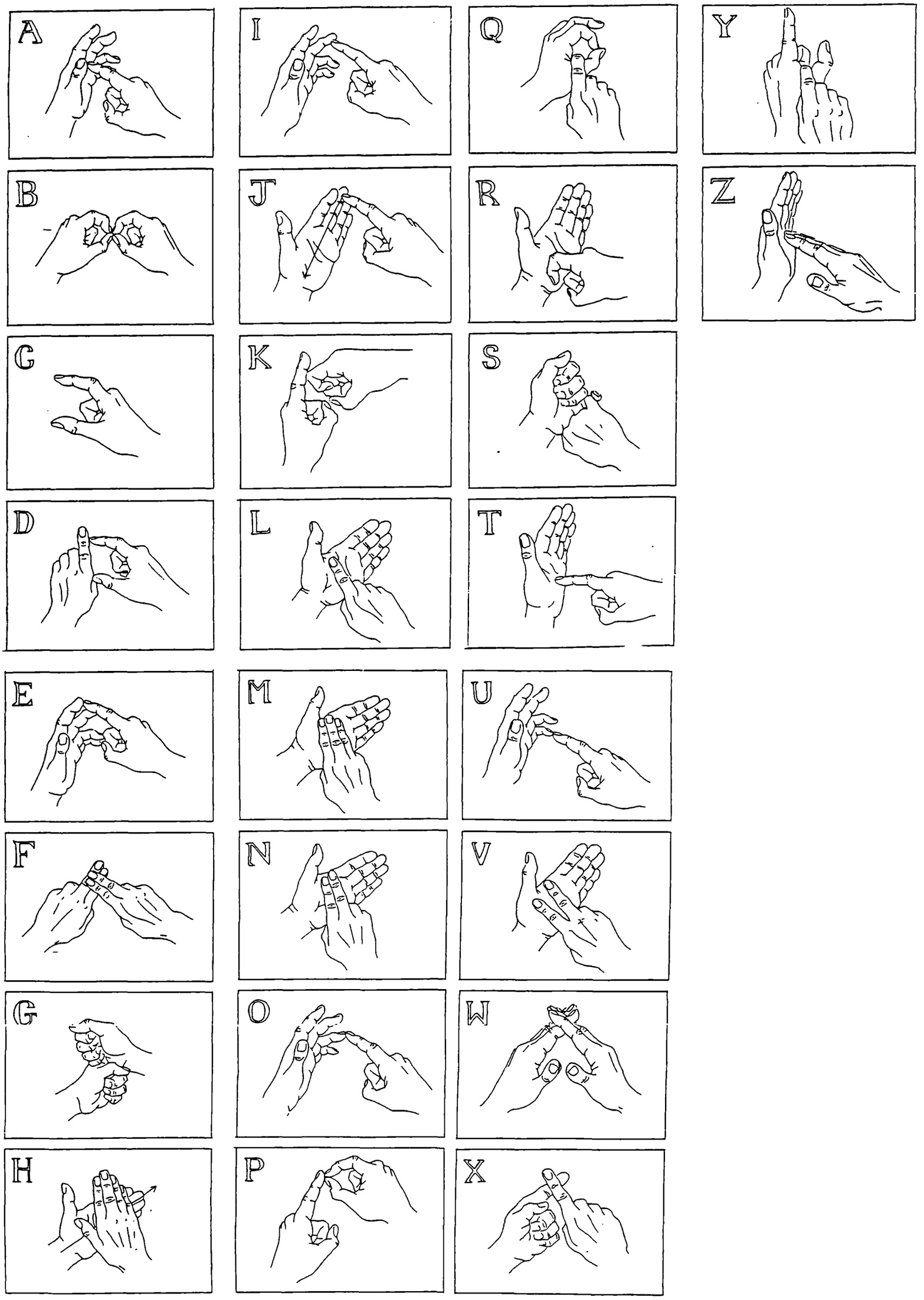


Figure I.1a: The modern British manual alphabet

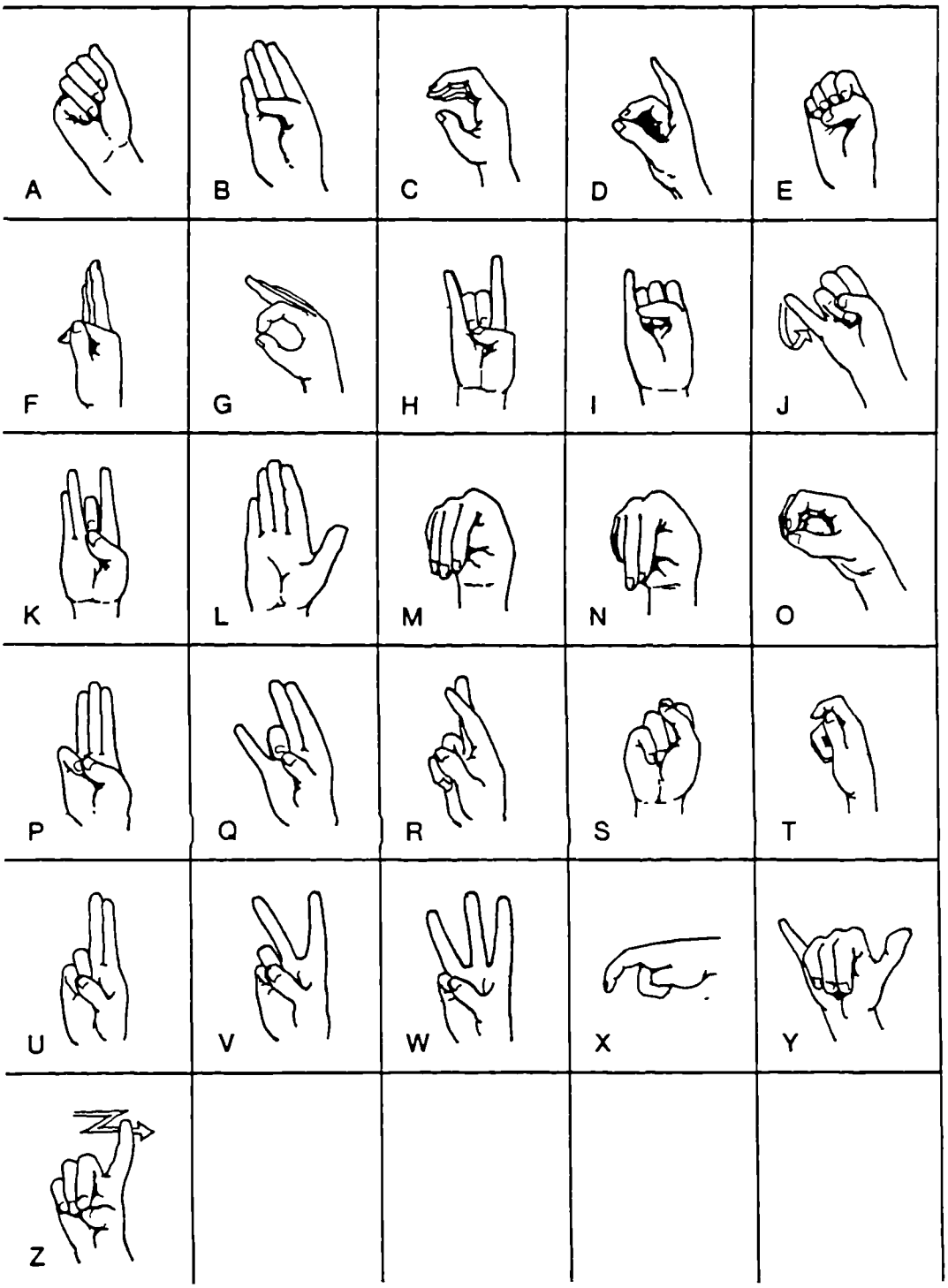
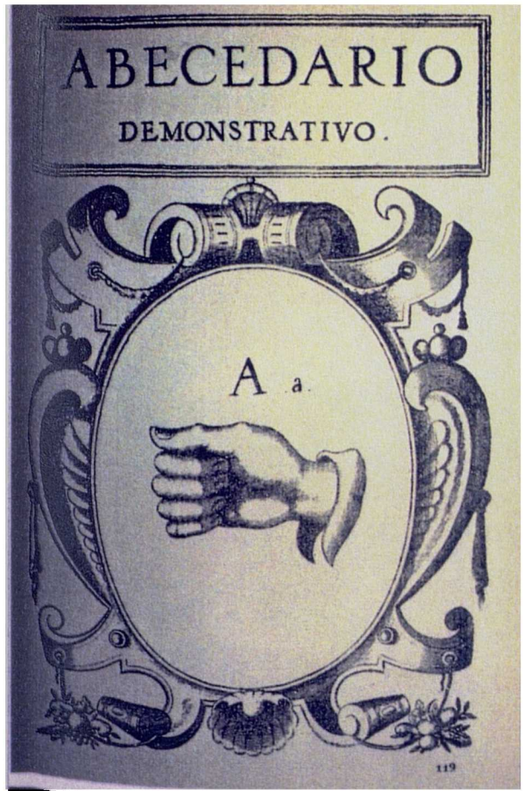
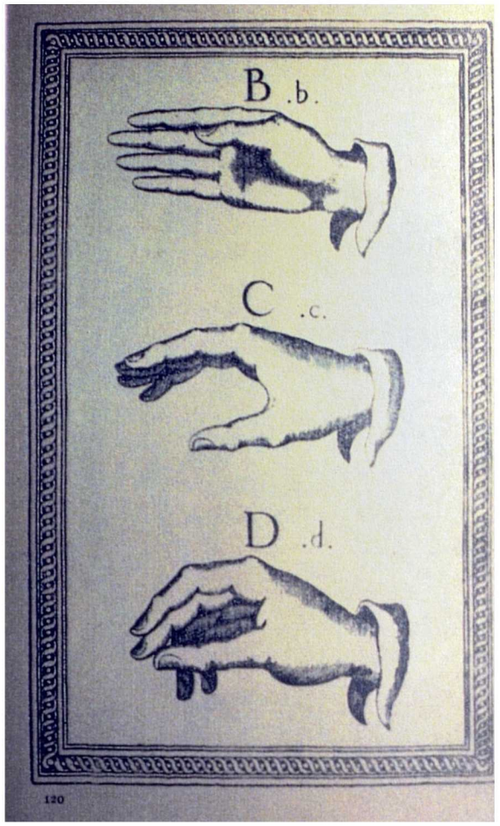
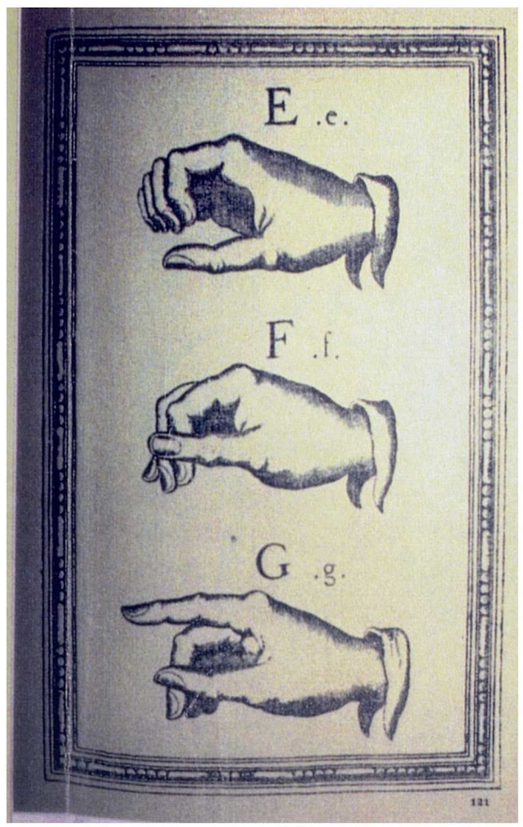


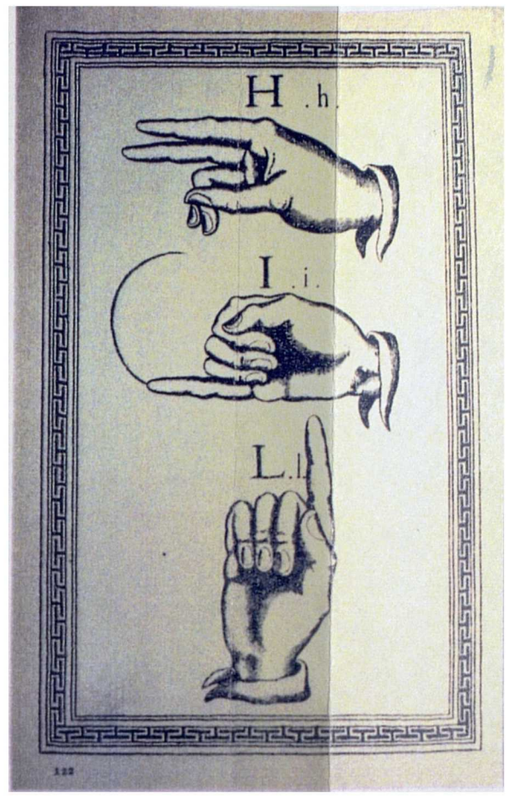
Figure I.1b: The modern Irish manual alphabet

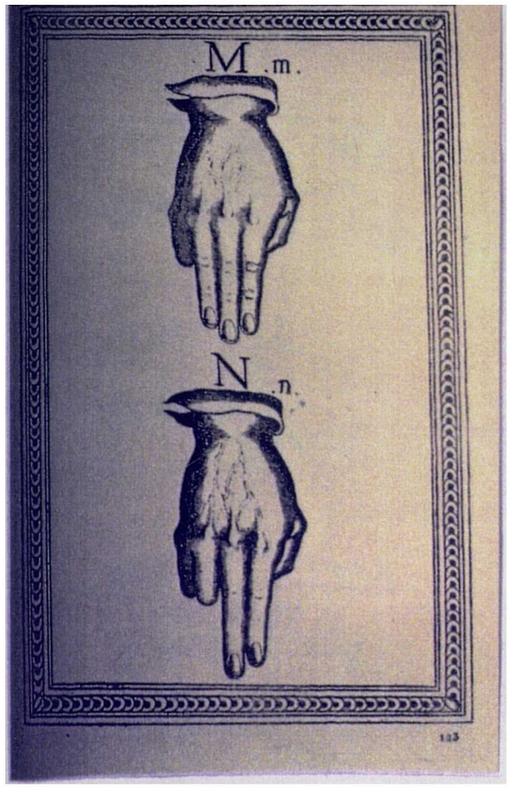
(from Carmel, 1981)

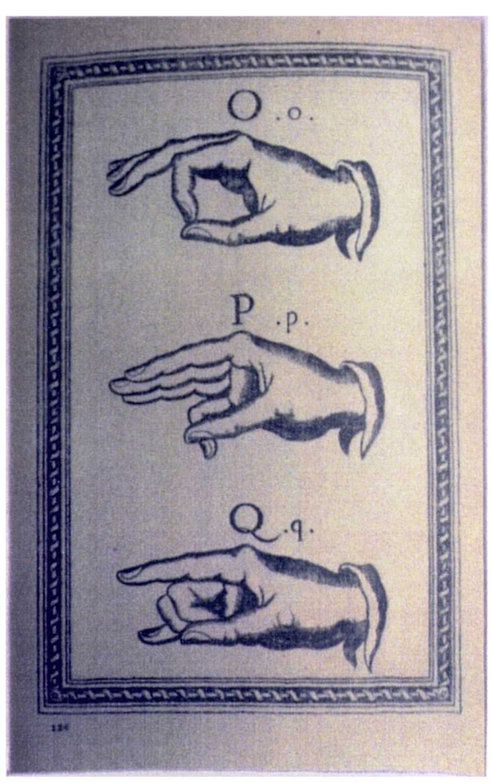


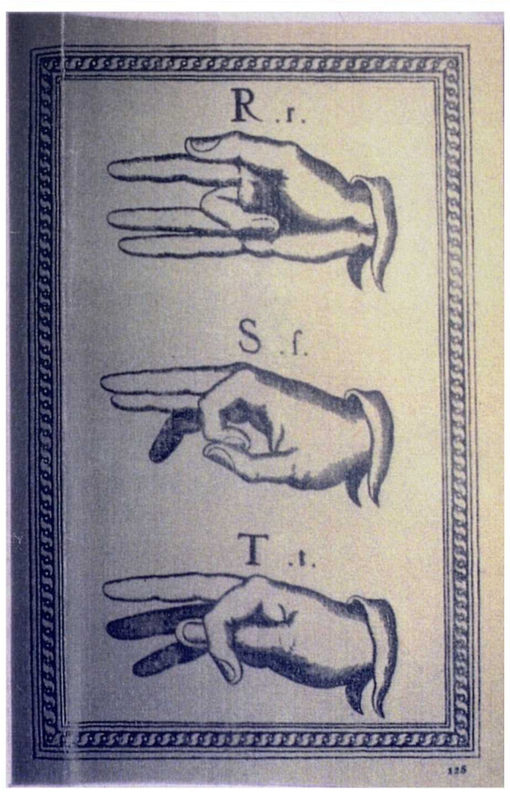












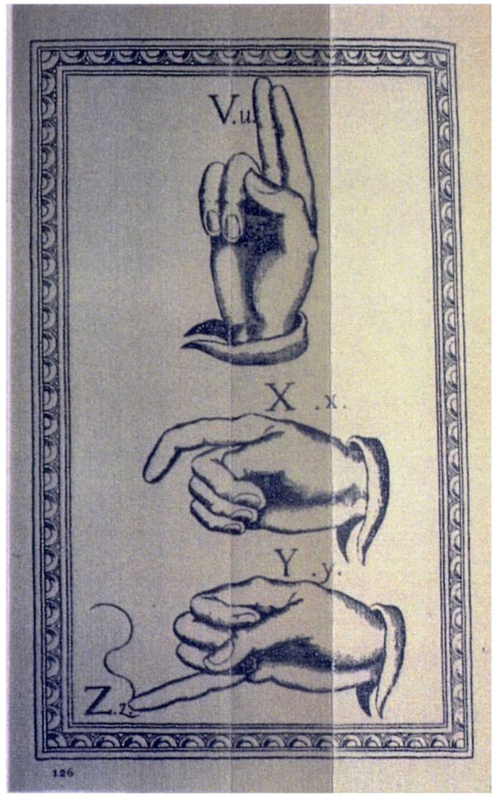


Figure I.3: Bonet, 1620, Reduccion des las Letras.

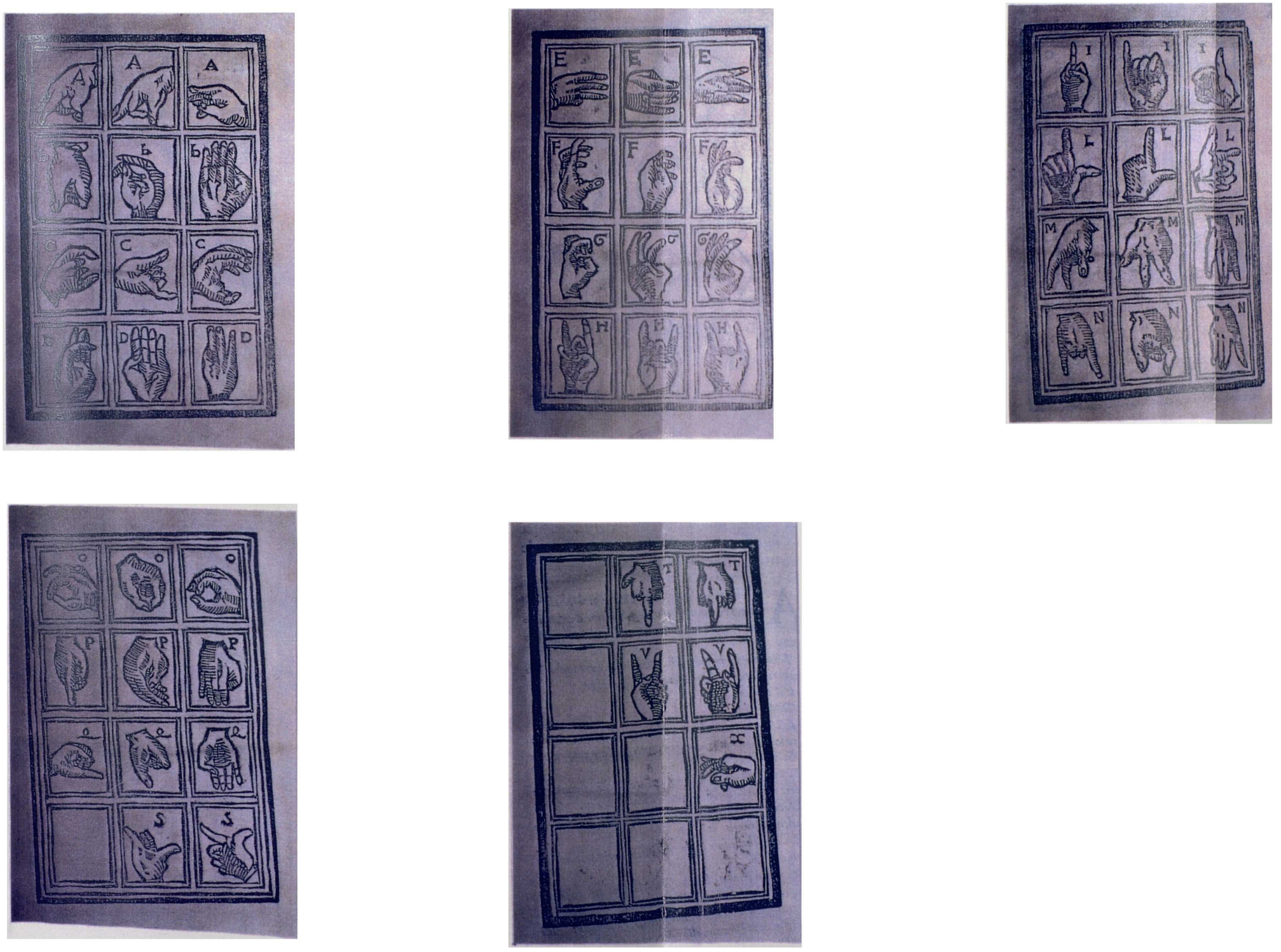


Figure I.2: Rossellius, 1579, Thesaurus Artificiosae Memoriae.

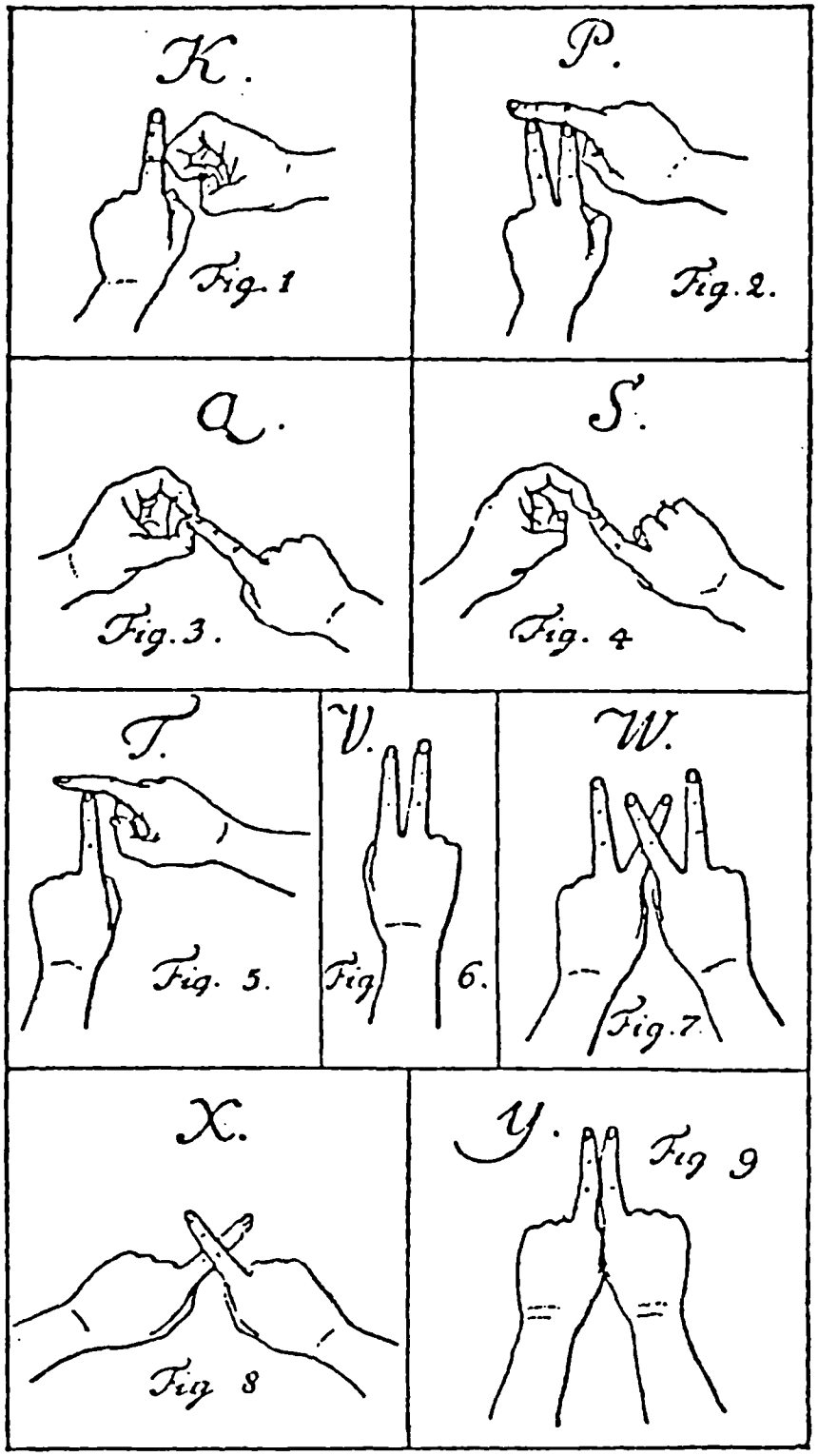


Figure I.4: Stephani, 1796, Franconian Manual Alphabet

(From Jussen, 1973)

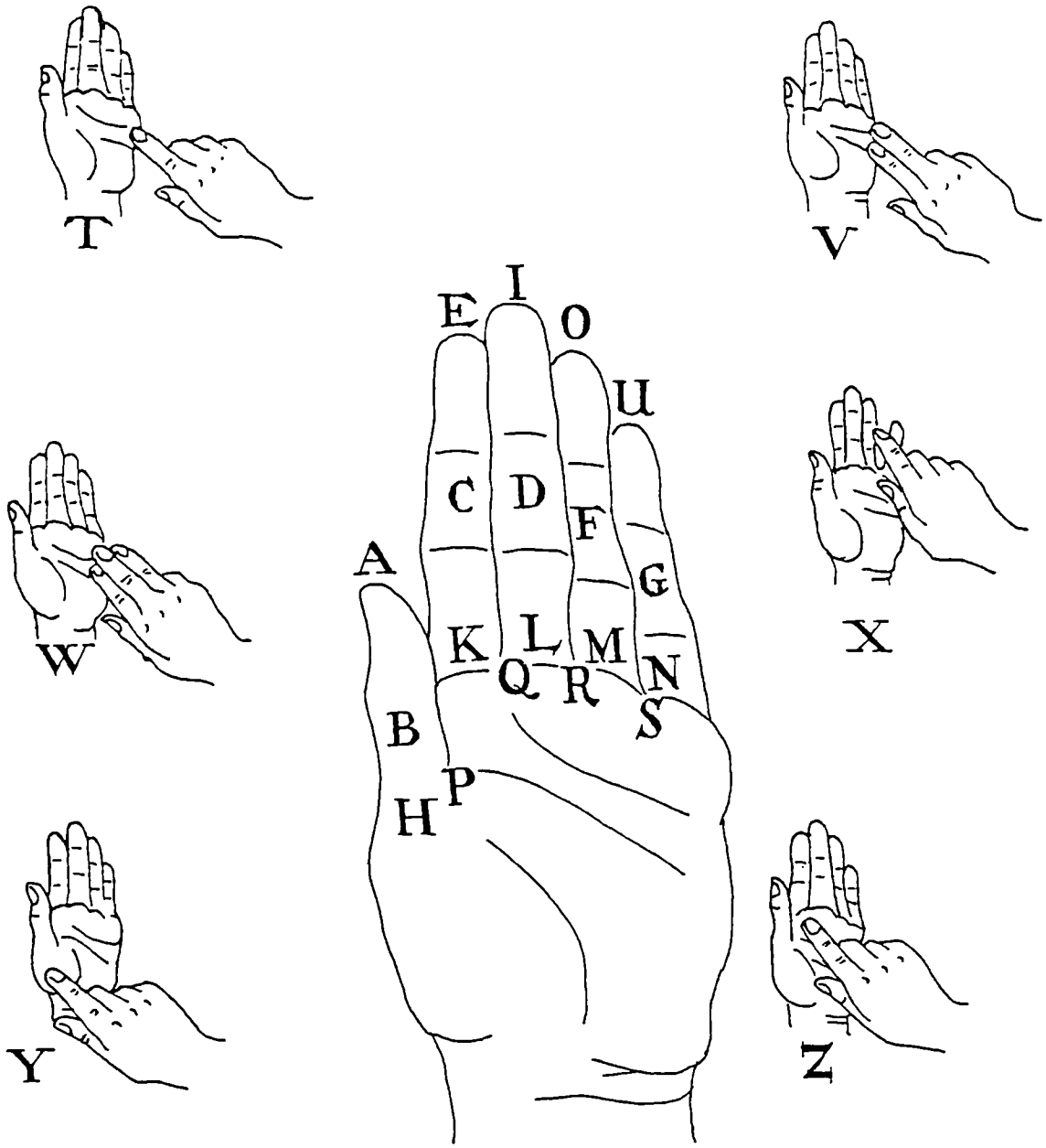


Figure I.5: Wilkins, 1641, Mercury, the Secret and Swift Messenger.

(Reconstructed from his description)

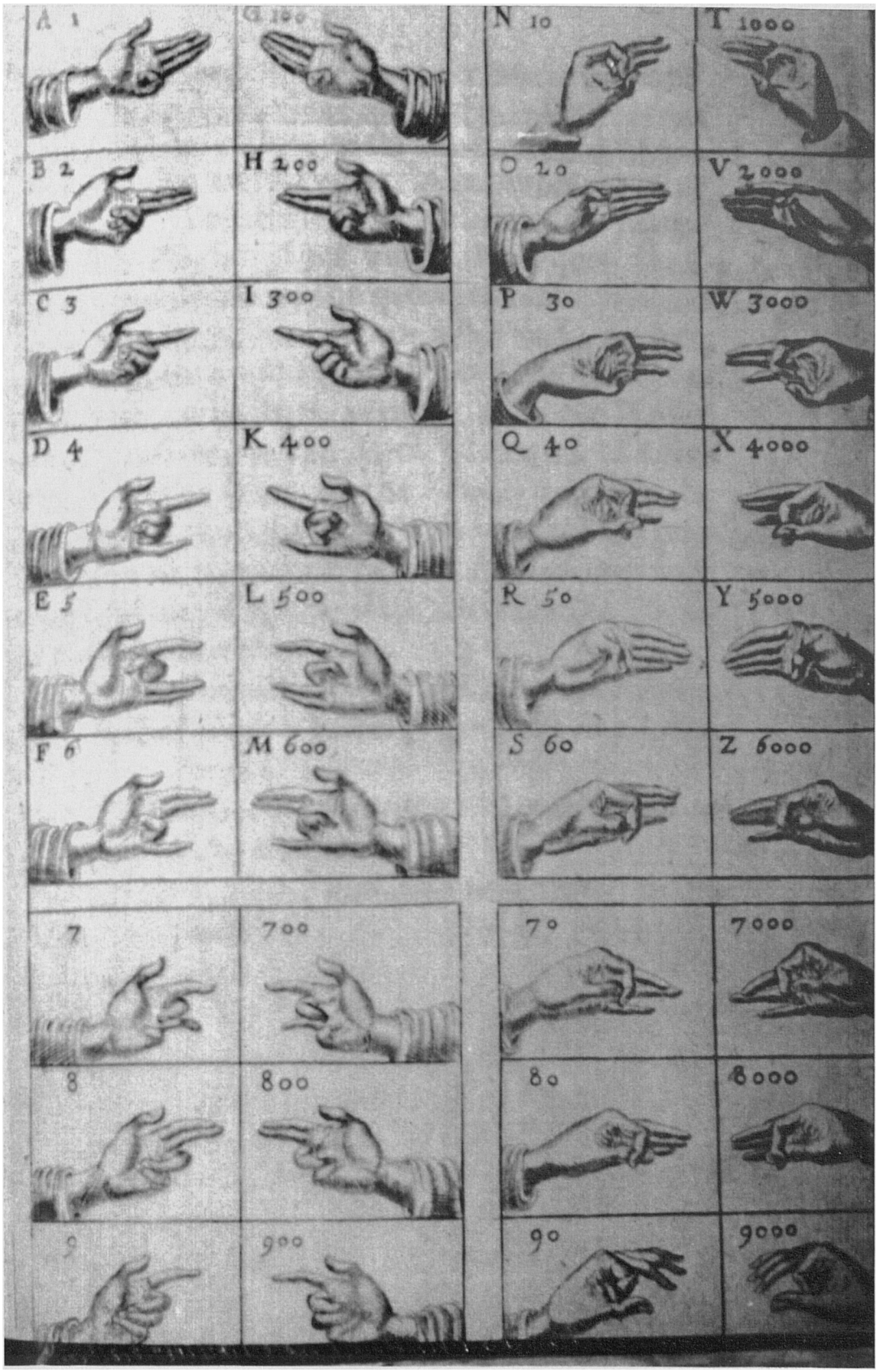


Figure I. 6 (a): Bulwer, 1644, Chirologia

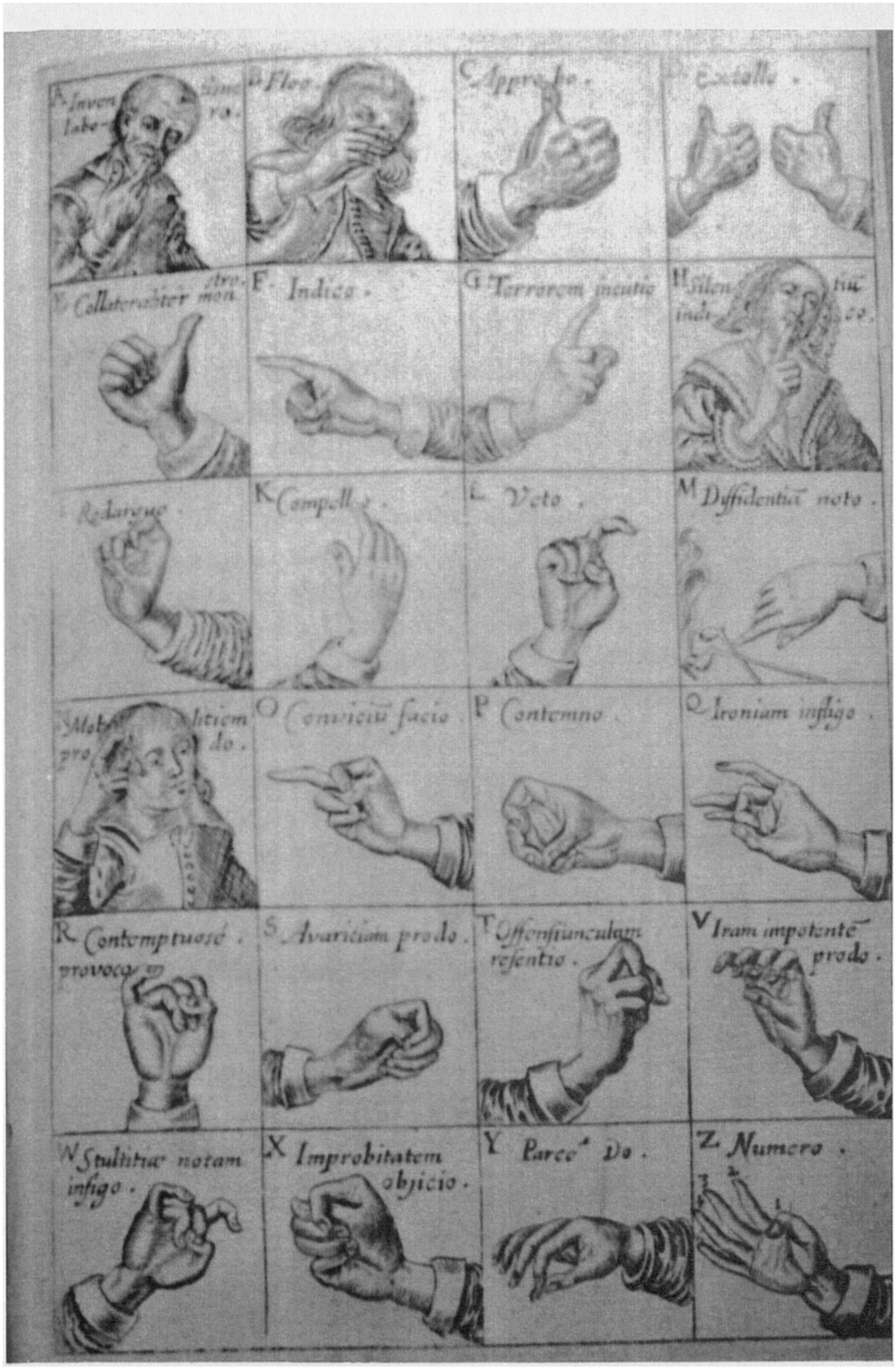


Figure I. 6 (b): Bulwer, 1644, Chirologia

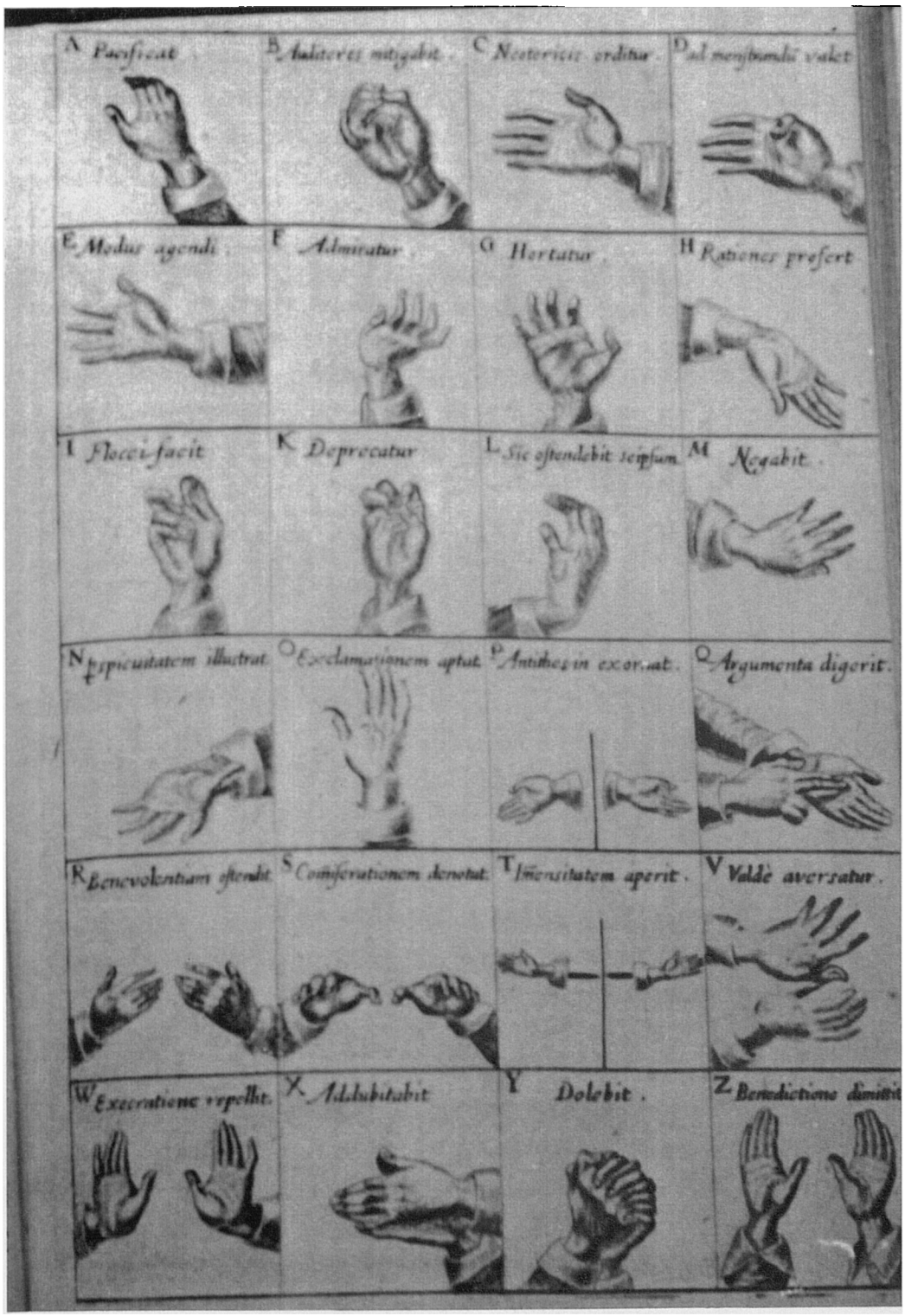


Figure I. 6 (c): Bulwer, 1644, Chirologia

Figure I. 6 (d): Bulwer, 1644, Chirologia

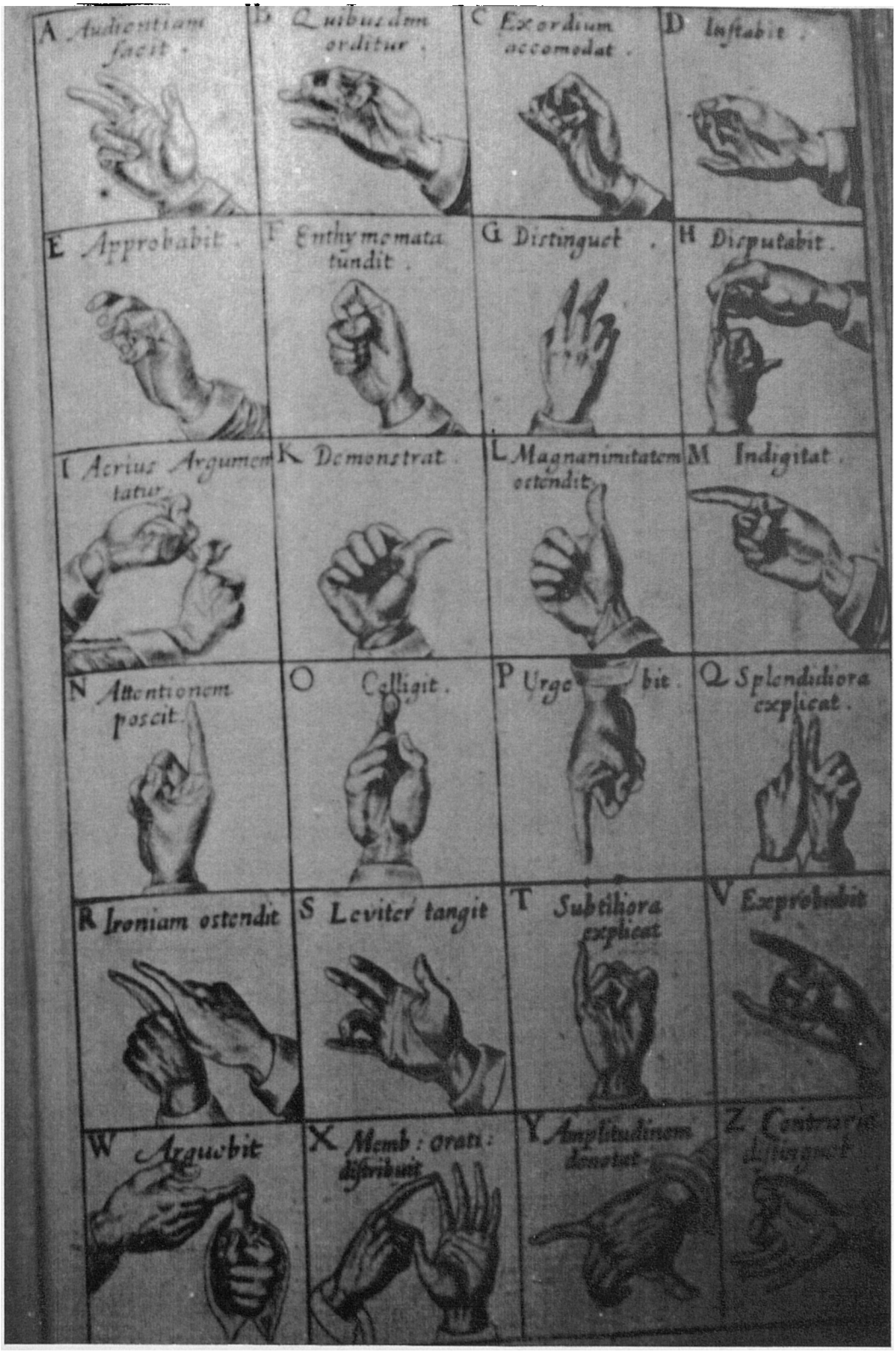


Figure I. 6 (e): Bulwer, 1644, Chirologia

Figure I. 6 (f): Bulwer, 1644, Chirologia

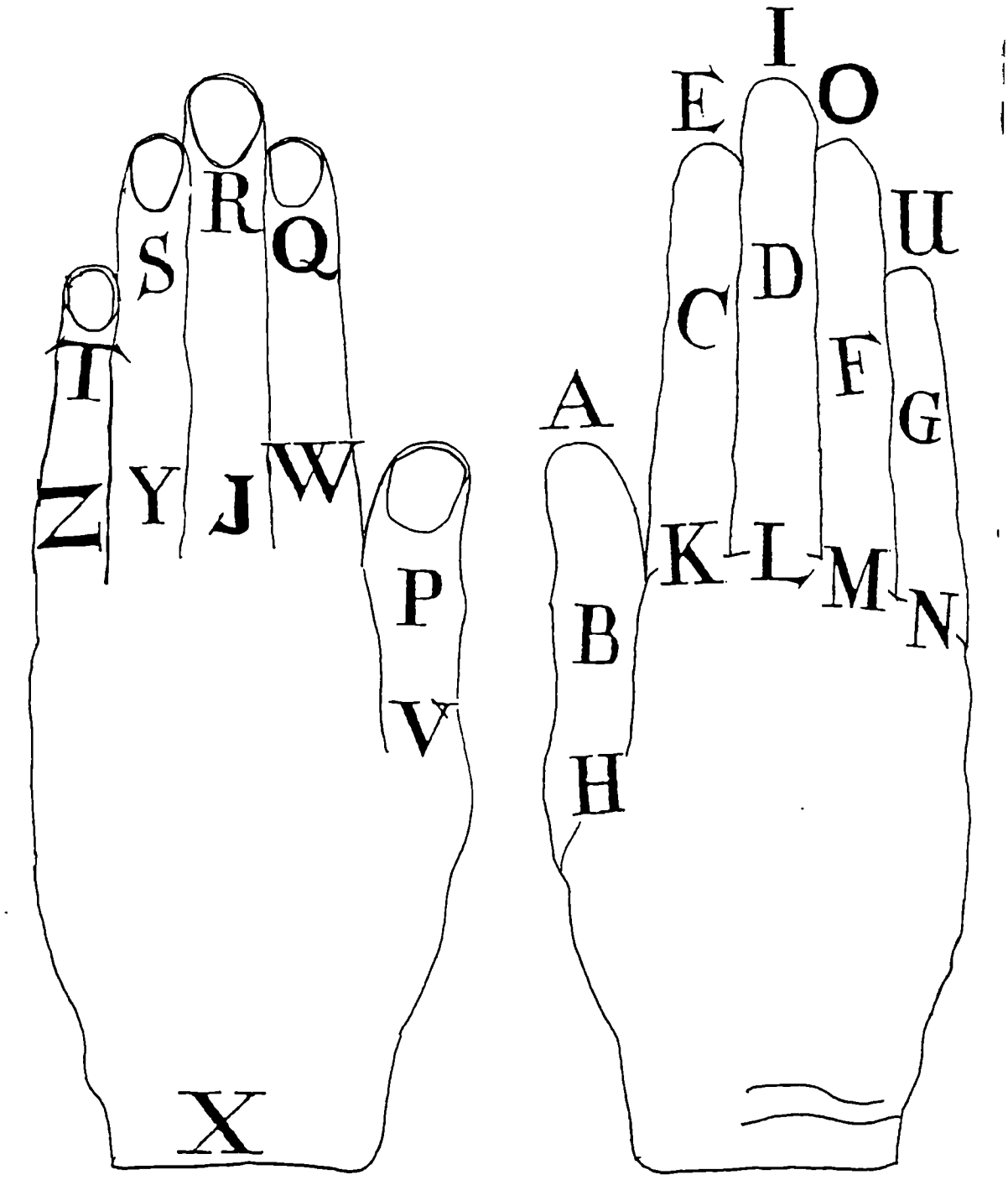


Figure I.7: Holder, 1669, Appendix to the Elements of Speech

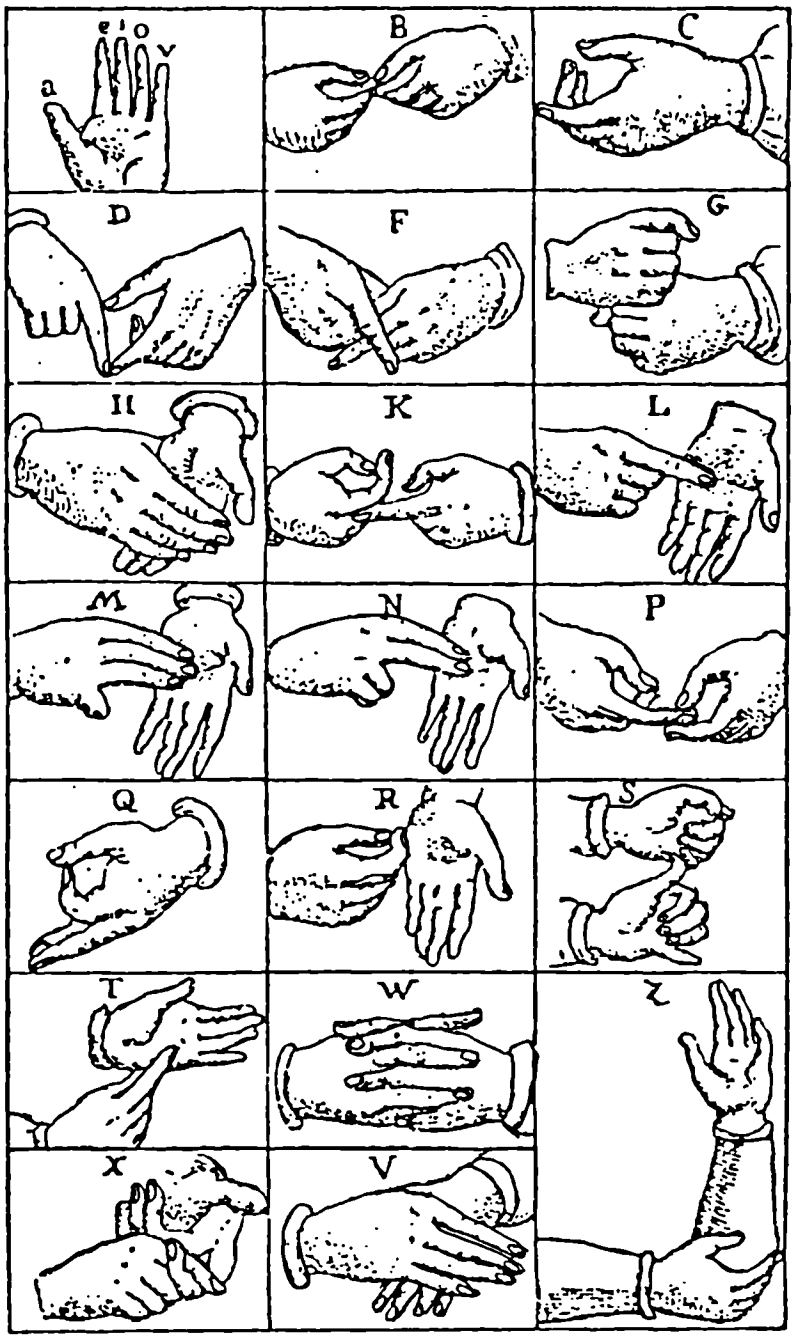


Figure I.8: Attributed to Wallis (mid to late 17th century) by Jussen (1973) (From Defoe, 1720)

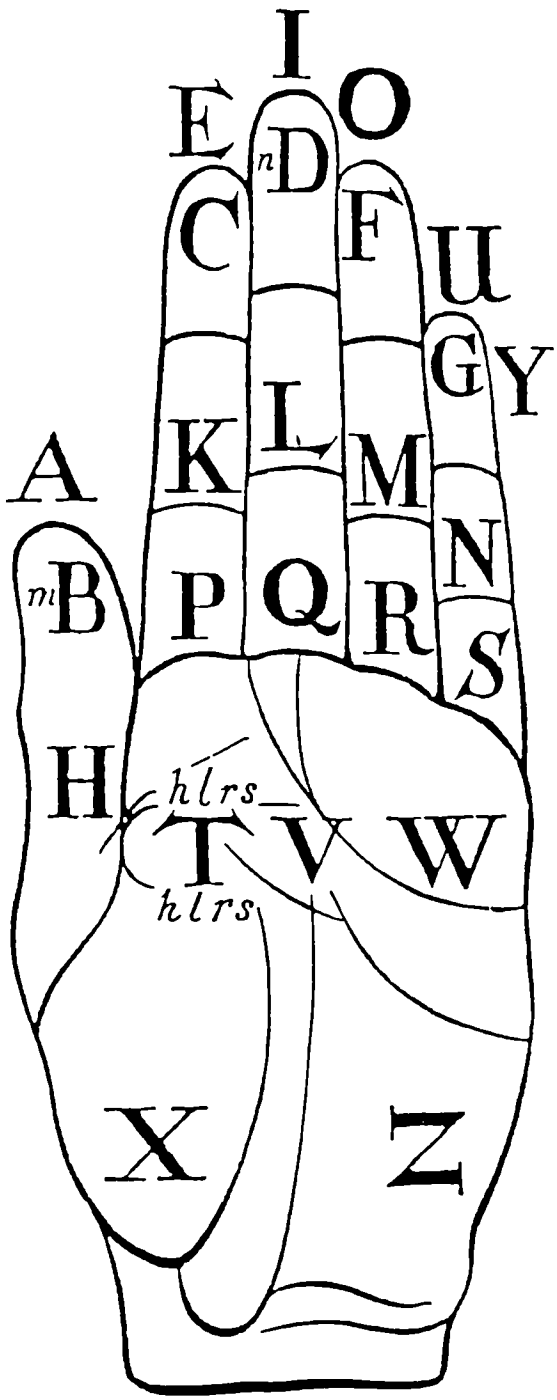


Figure I.9: Dalgarno, 1680, Didascalocophus.

The Vowels A, E, I, O, U, Y, are signified by the thumb and Fingers, of the left hand; A the Thumb, E the first Finger, I the second Finger, O the third Finger, U the fourth or little Finger. And because there is no place for Y among the Fingers, it is set in the plain of *Mars*, or hollow of the hand, as in the following Figure appeareth.

The CONSONANTS.
B - Brow
C - Cheek
D - Deaf Ear
F - Fore-head
G - Gullet
H - Hair
I - Eye
K - Knuckle
L - Lip
M - Mouth
N - Nose
P - Pap
Q - Quick motion with any Finger
R - Rib
S - Shoulder
T - Temples
V - Vein in the Arm
W - Wrist
X - Two first Fingers a cross
Z - Breast, lower part

Figure I.10: La Fin, 1692, Sermo Mirabilis.

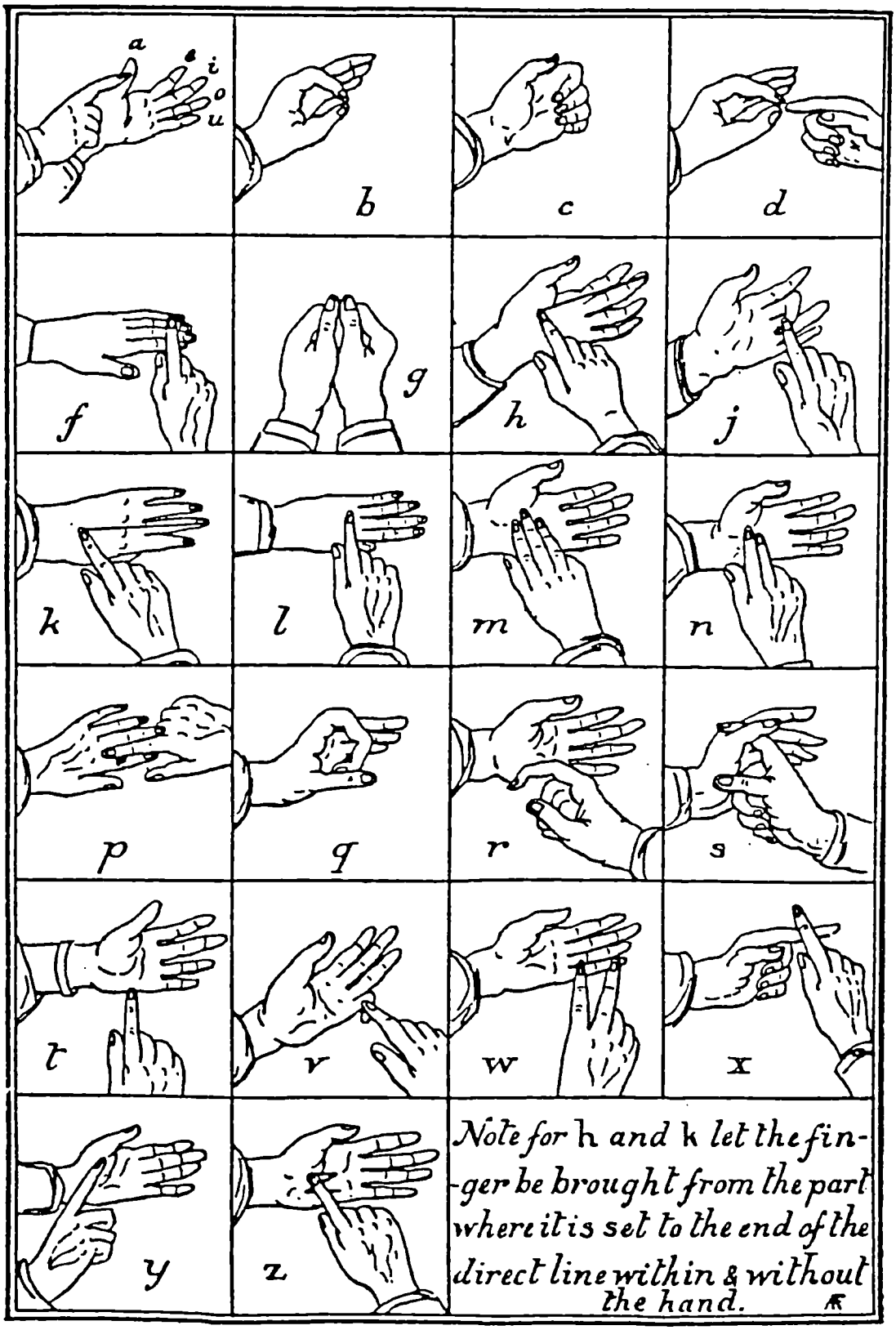


Figure I.11 (a): Anonymous, 1698, Digiti Lingua.

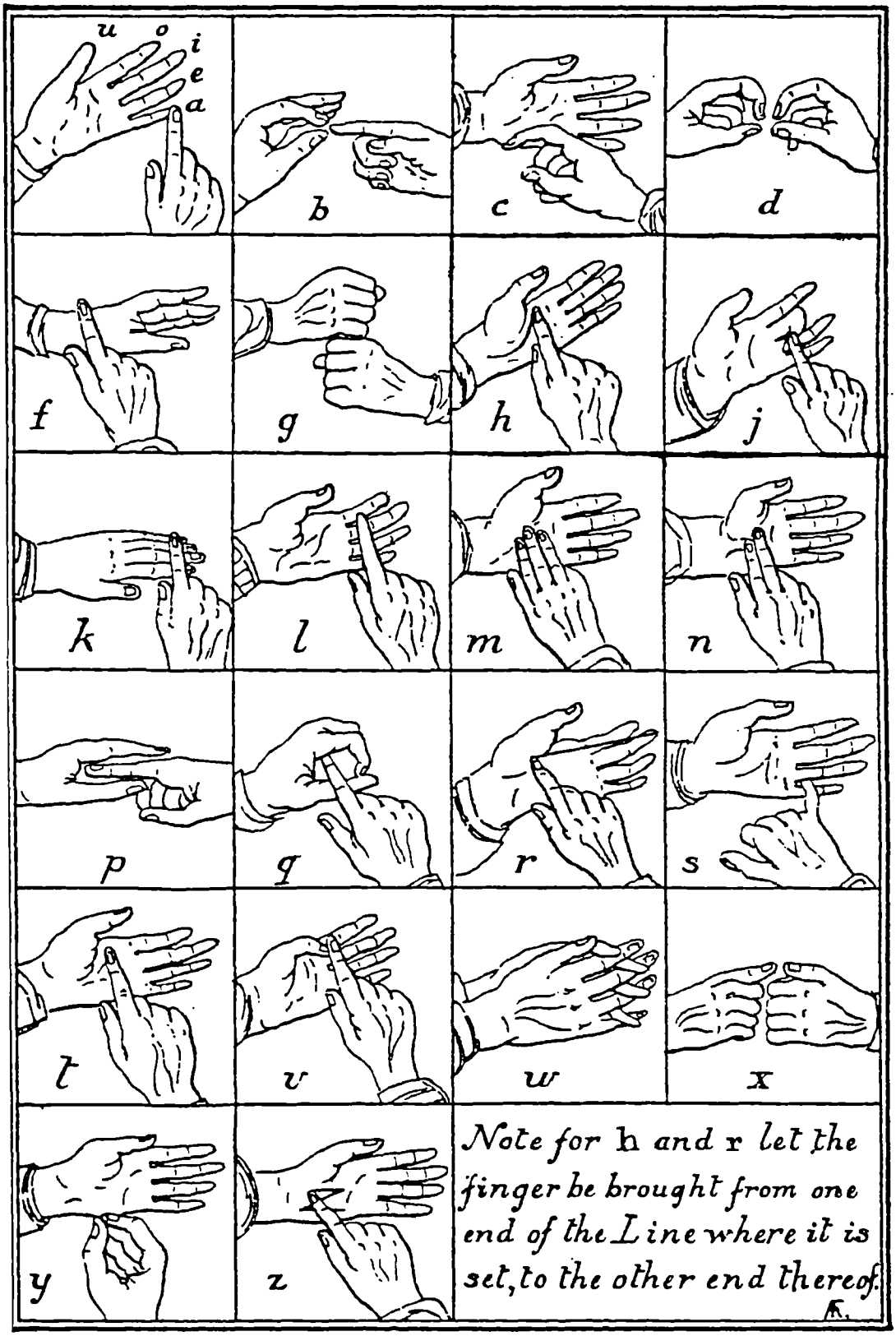


Figure I.11 (b): Anonymous, 1698, Digiti Lingua.

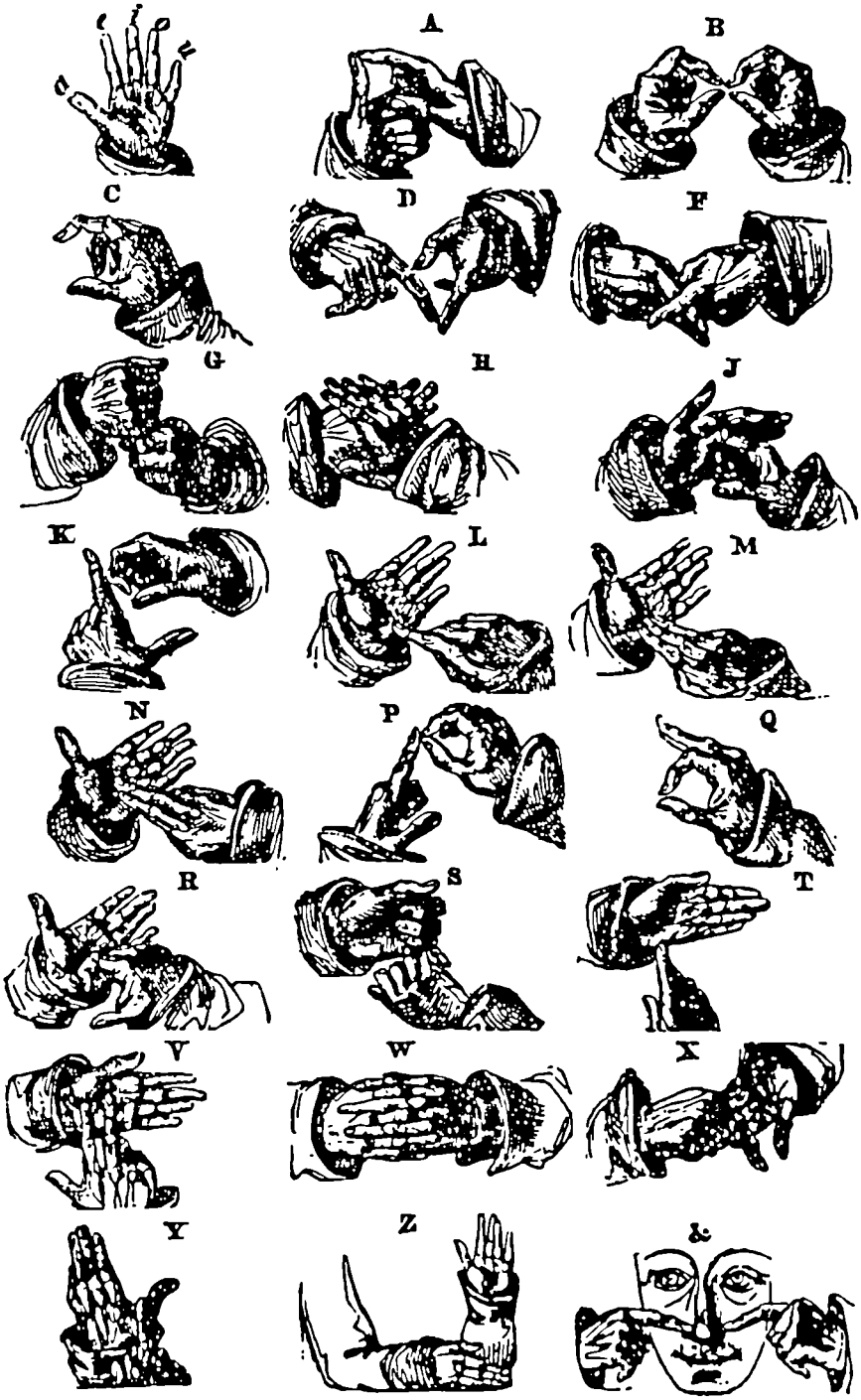
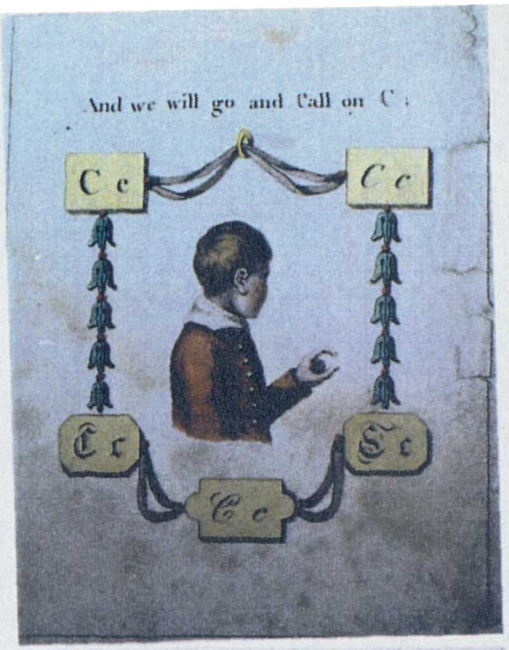
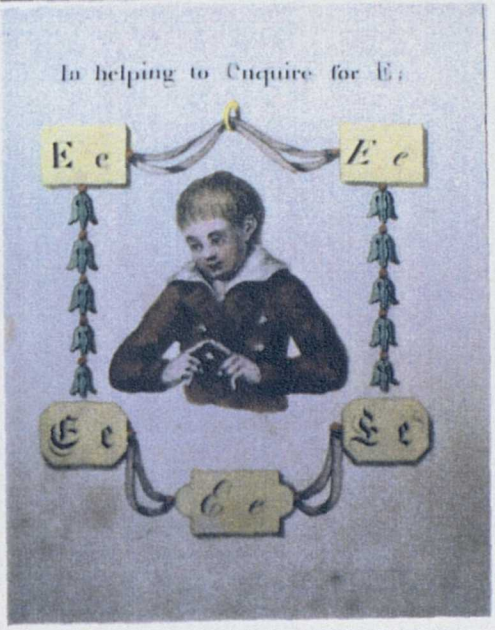


Figure I.12: Defoe, 1732, The life and adventures of Duncan Campbell.


A said to B, Come here to me.
Aa Aa
Bb Bb


And we will go and Call on C;
Cc Cc


Who will aid with his friend D:
D d Dd

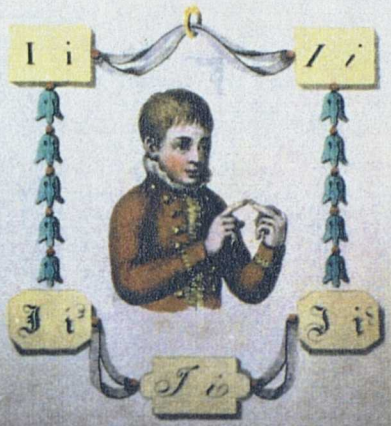

In helping to Enquire for E;
E e Ee


Then, finding F I fancy we
F f Ff


Shall not be long in getting G;
G g Gg

And, though some say, H is no letter,
I think, he cannot do much better

Than herd with us; and after I,



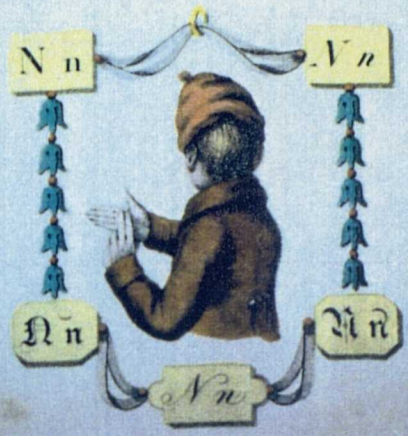
Inviting J, will jointly try, †

If K will be so kind to tell,

Where we shall light on lounging L;

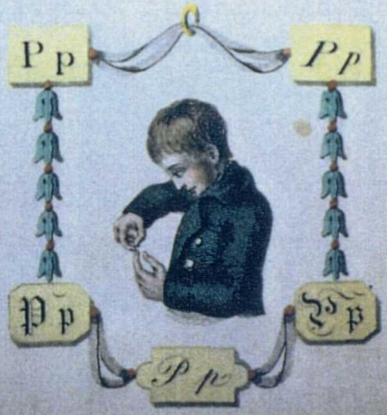
M next will meet us; N and O,

Though sometimes known to answer NO.



Will, when we summon them, come ON.

And P his part will play anon;

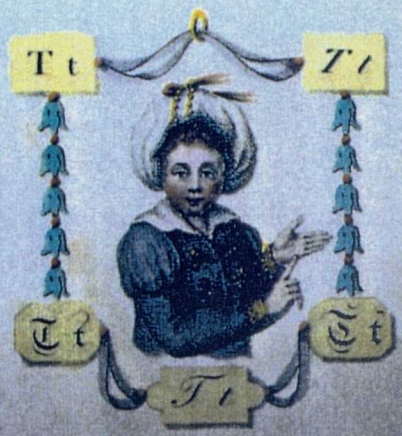


Q will not quarrel with our views.

And R, I'm sure, will not refuse.

S, it is true, is apt to *hiss*, ÷
But will not take our scheme amiss.

T will accompany us too,



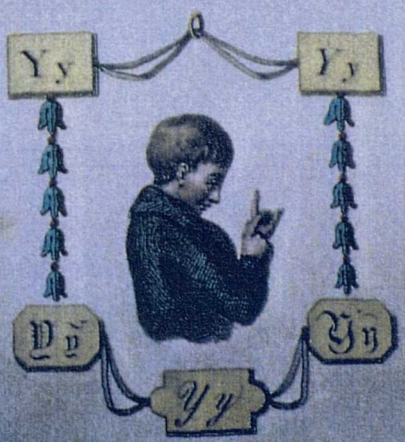
And talk of it to useful U,

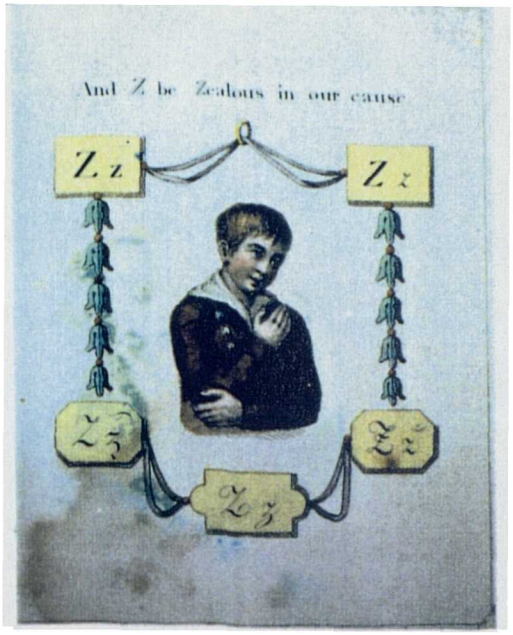
Our visit V will no way vex,

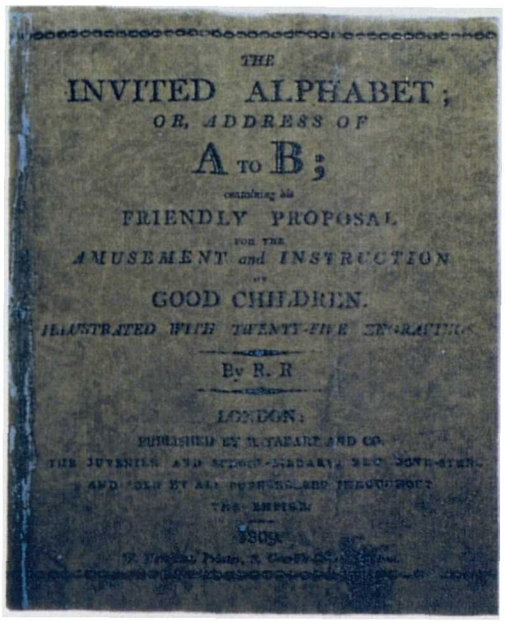
W will welcome us, and X,

Though backward to *begin*, I know,
Will still a good eXample show;

Y will say Yes, with much applause,







Original in colour

Figure I.13: R.R., 1809, The Invited Alphabet.

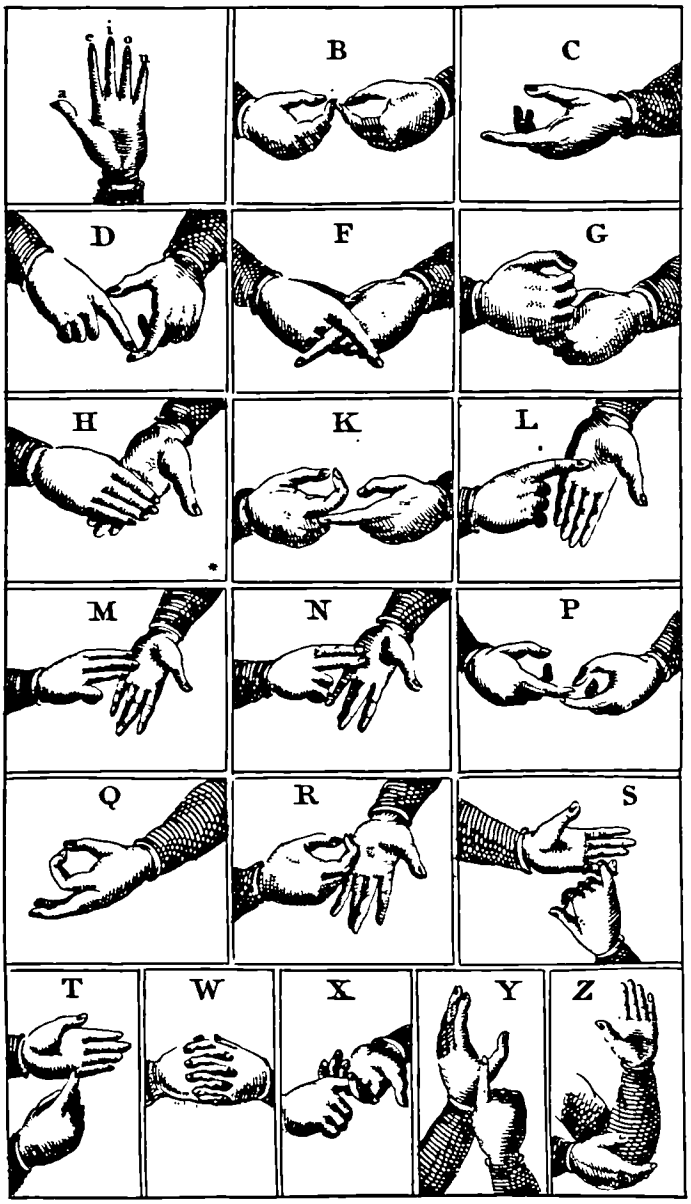


Figure I.14: Watson, 1809, Instruction of the deaf and dumb.

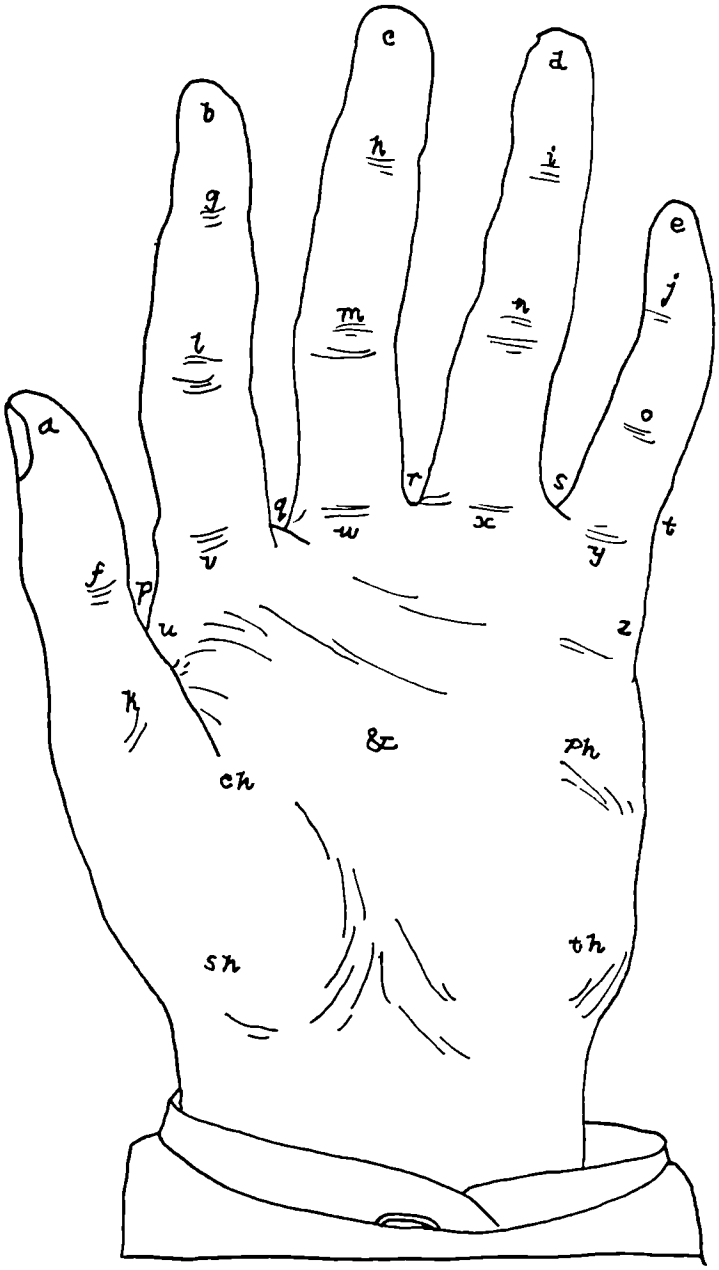


Figure I.15: Lucas, 1812, Chyrology

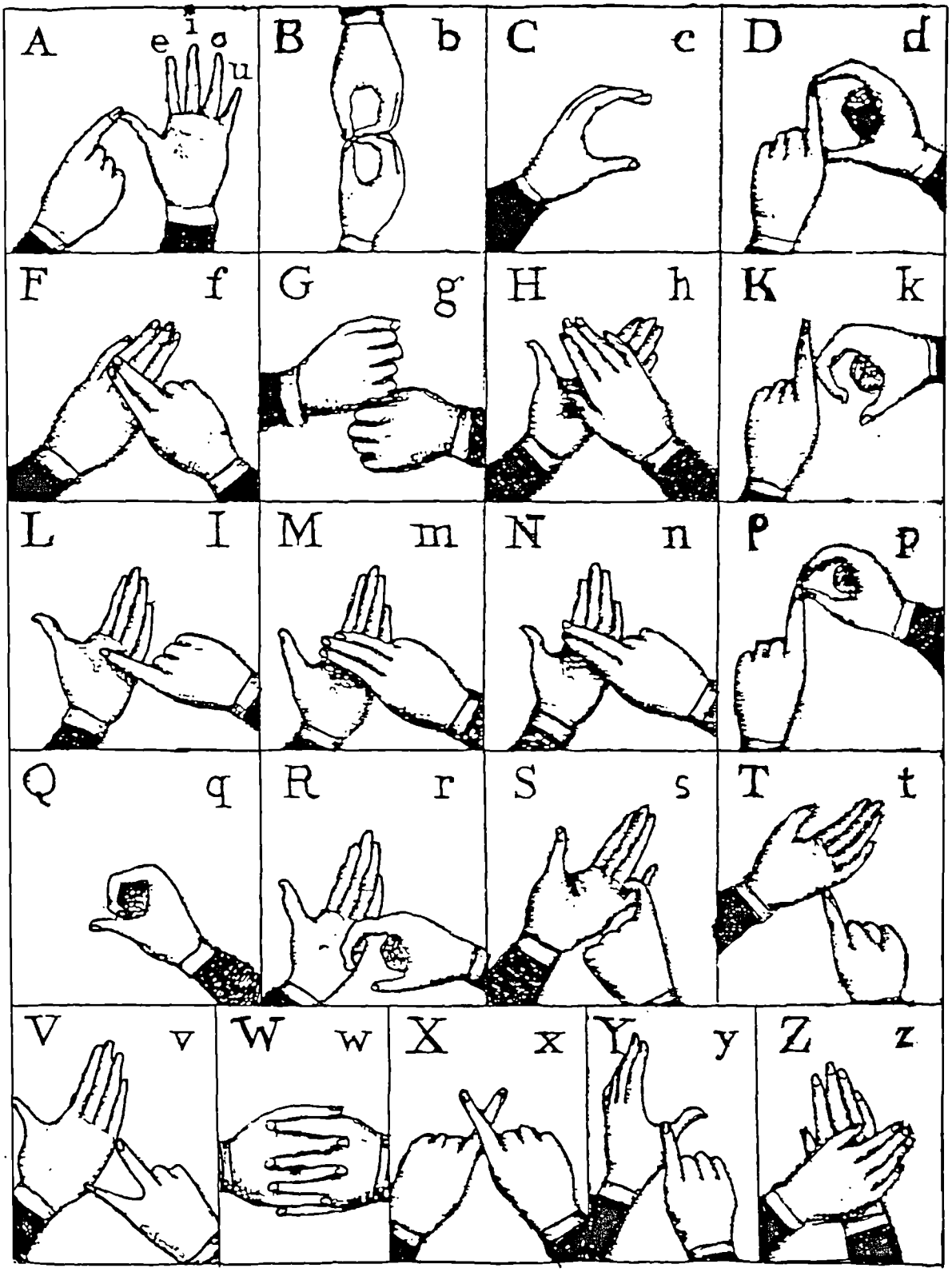
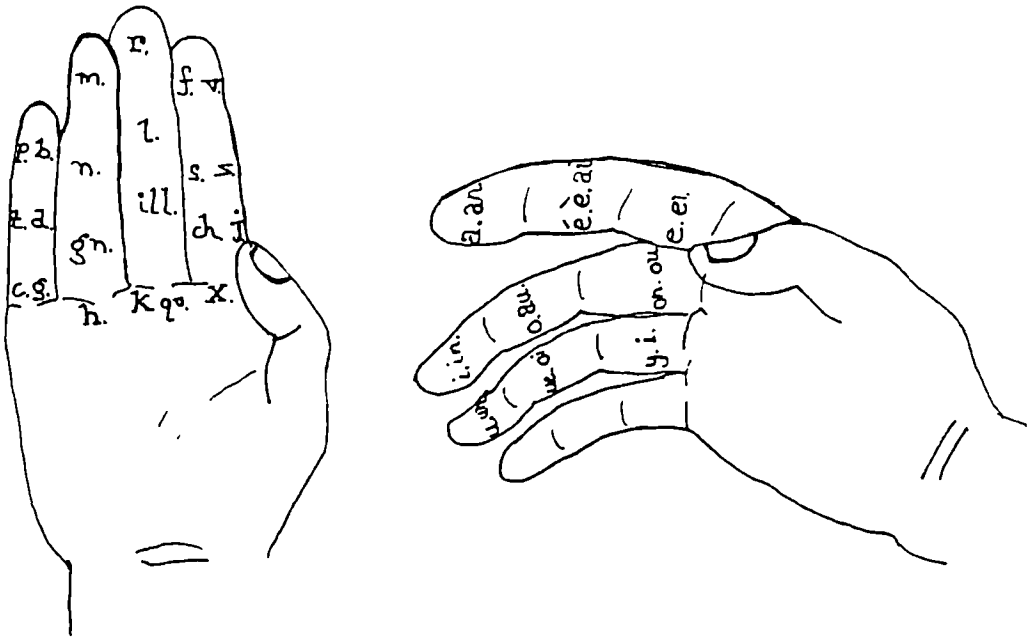


Figure I.16: Arrowsmith, 1819, The Art of Instructing the Infant Deaf and Dumb



This alphabet may be written on a glove to be given to people who have not studied Dactylology.

The letters are indicated using the thumb. Where two sounds are represented on the same joint, the nail marks the first, and the pad serves to indicate the second.

The sibilant sounds placed on the index finger are ordered according to the analogy that they have between them. I have followed the same rule for the plosives which are on the little finger.

I could have limited myself to drawing only the five vowels; but that would have been to fall again to the inconvenience found in present-day ordinary writing; the vowels composed of several letters require the use of several signs and my Dactylology could not have kept up with the mechanisms of spoken language.

Figure I.17: Deleau, 1829, Nouvelle Dactylologie.

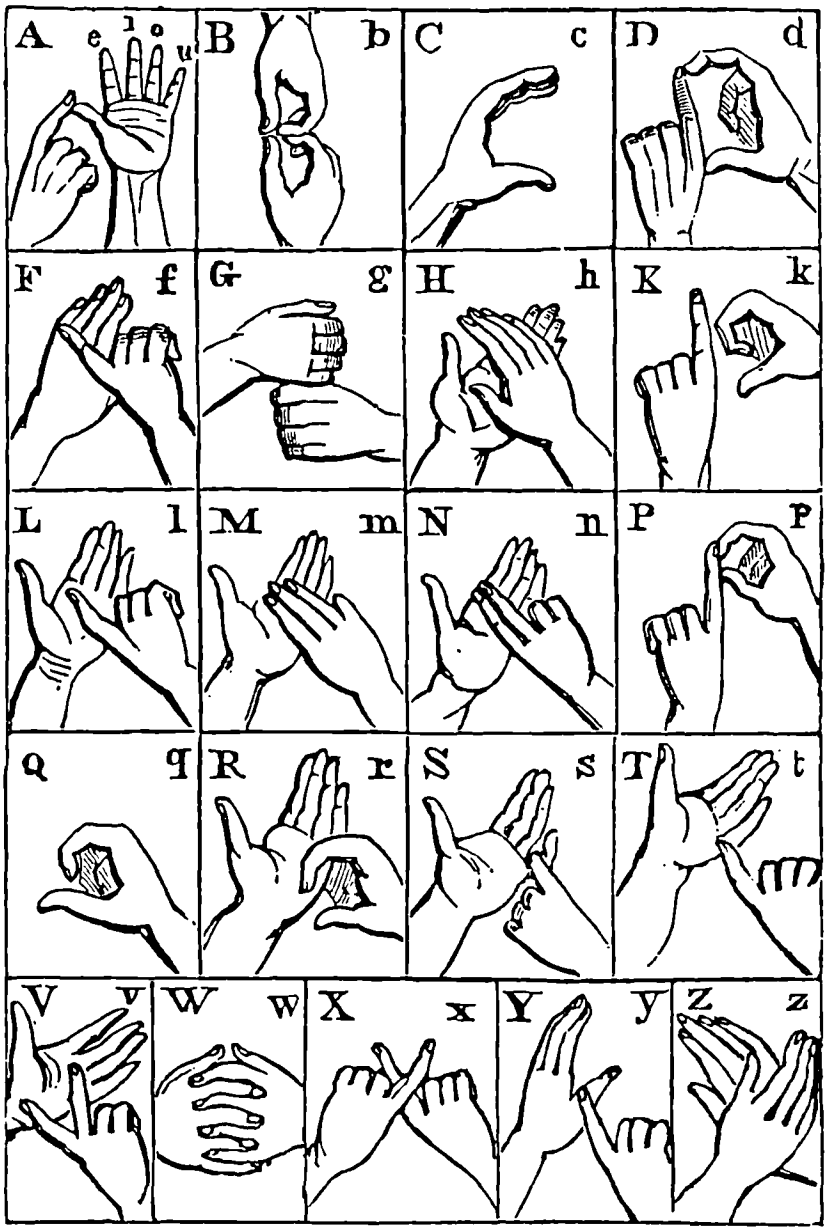


Figure I.18: Hippisley Tuckfield, 1839, Education for the people.

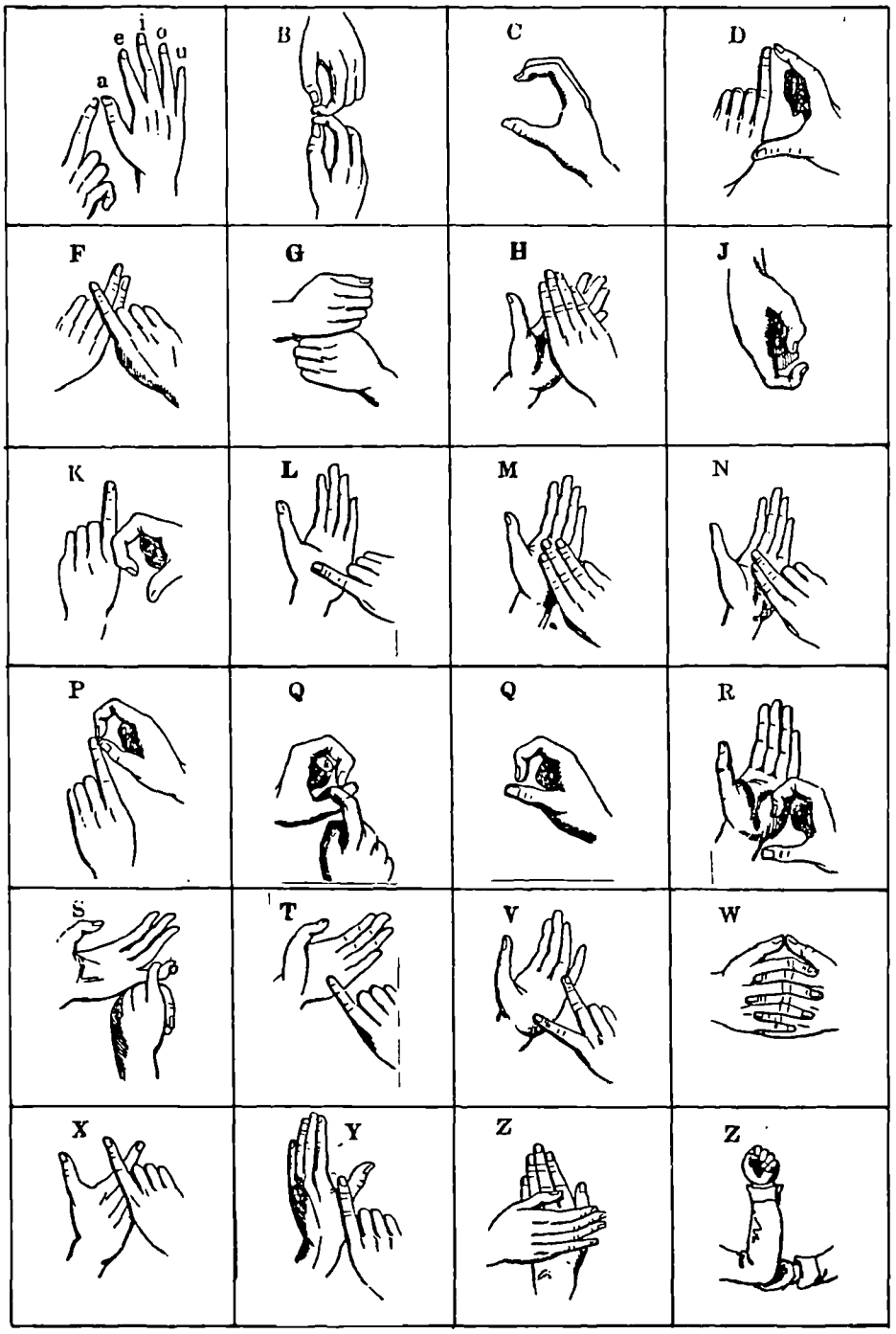


Figure I.19: Kitto, 1845, The lost senses

ALPHABET FOR THE DEAF AND DUMB.

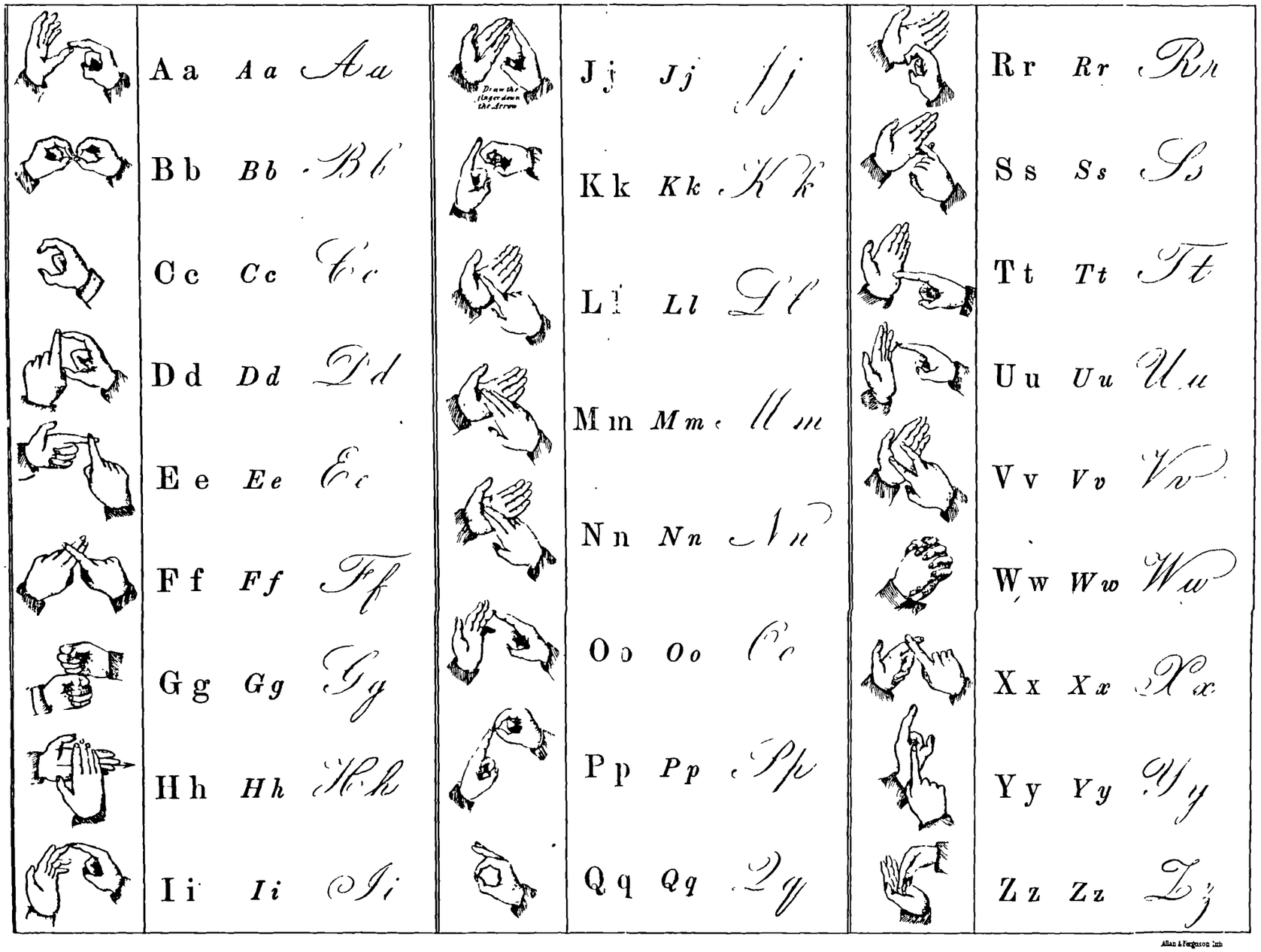


Figure I.20: Rhind, undated, Illustrated Lessons for the deaf and dumb.

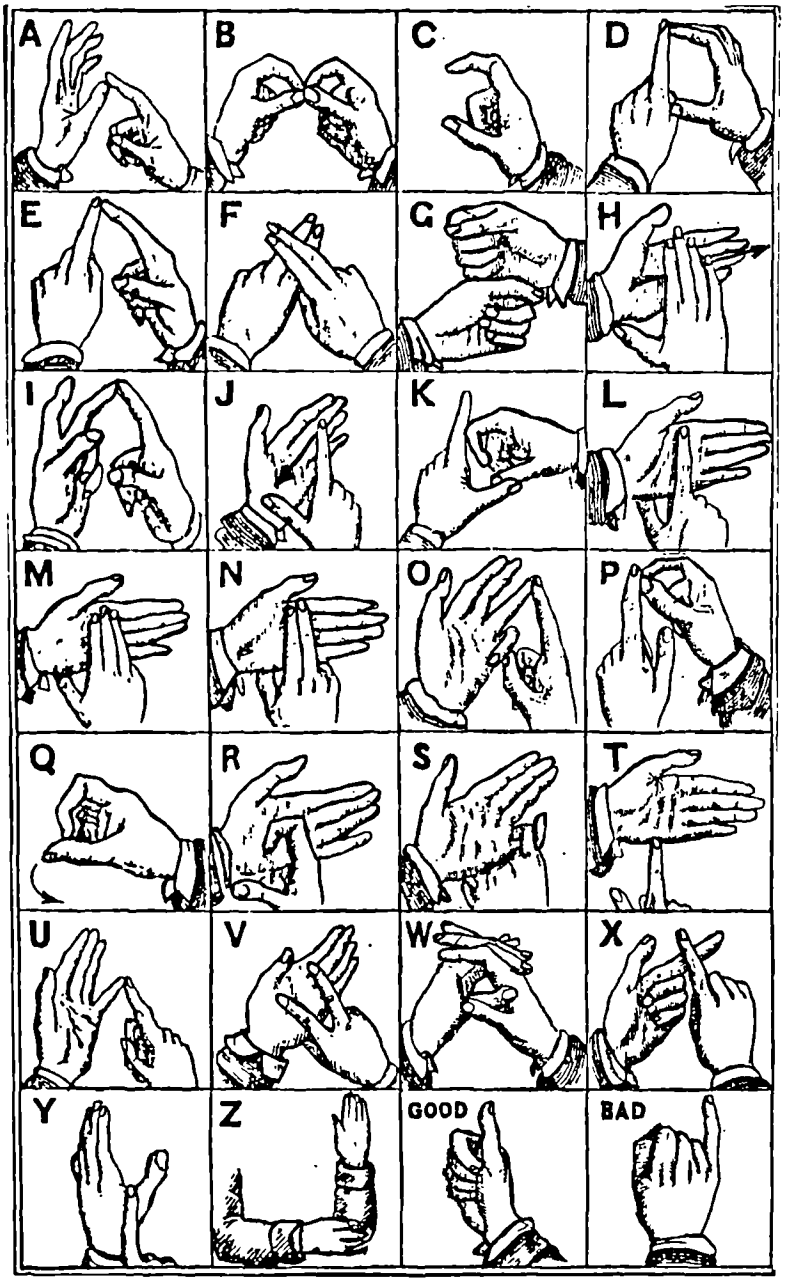


Figure I.21: Smith, 1864, The deaf and dumb.

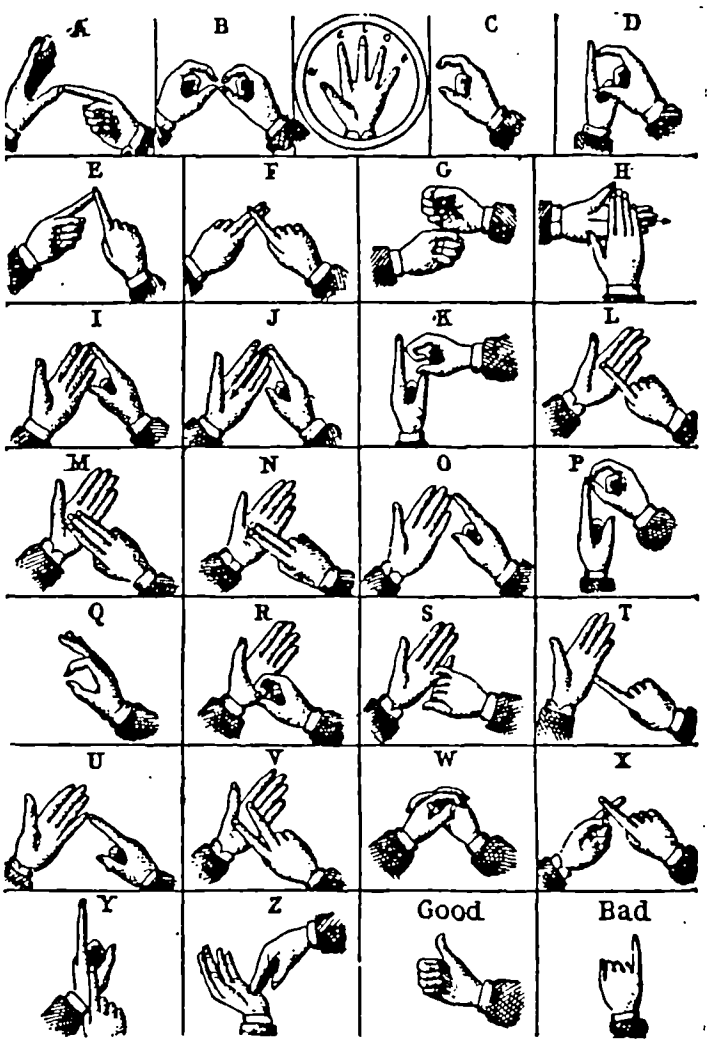


Figure I.22: The Fraternity Alphabet. From the British Deaf Times, 1893 and 1903

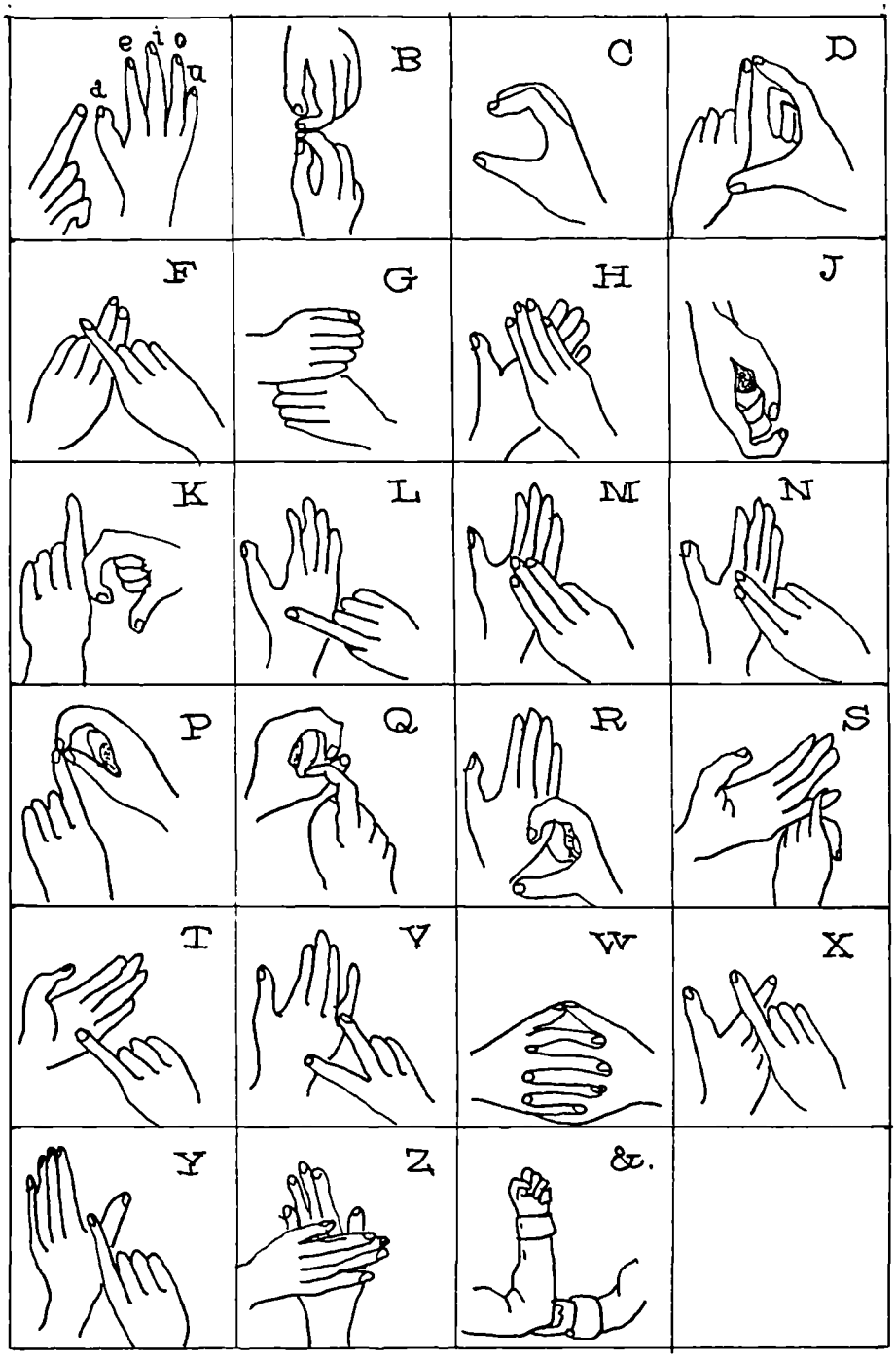


Figure I.23: Kiley, 1872, A Handbook in The Manual Alphabets

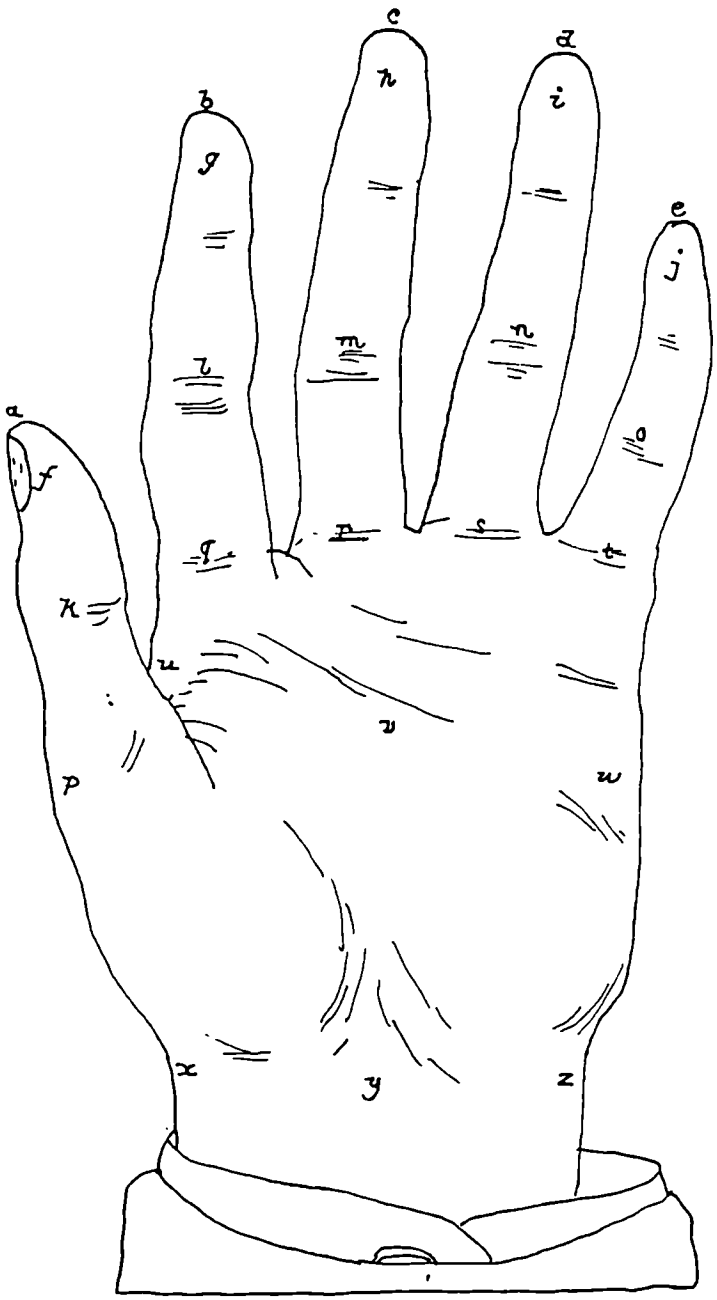


Figure I.24: Bell, 1883, A method of teaching language.

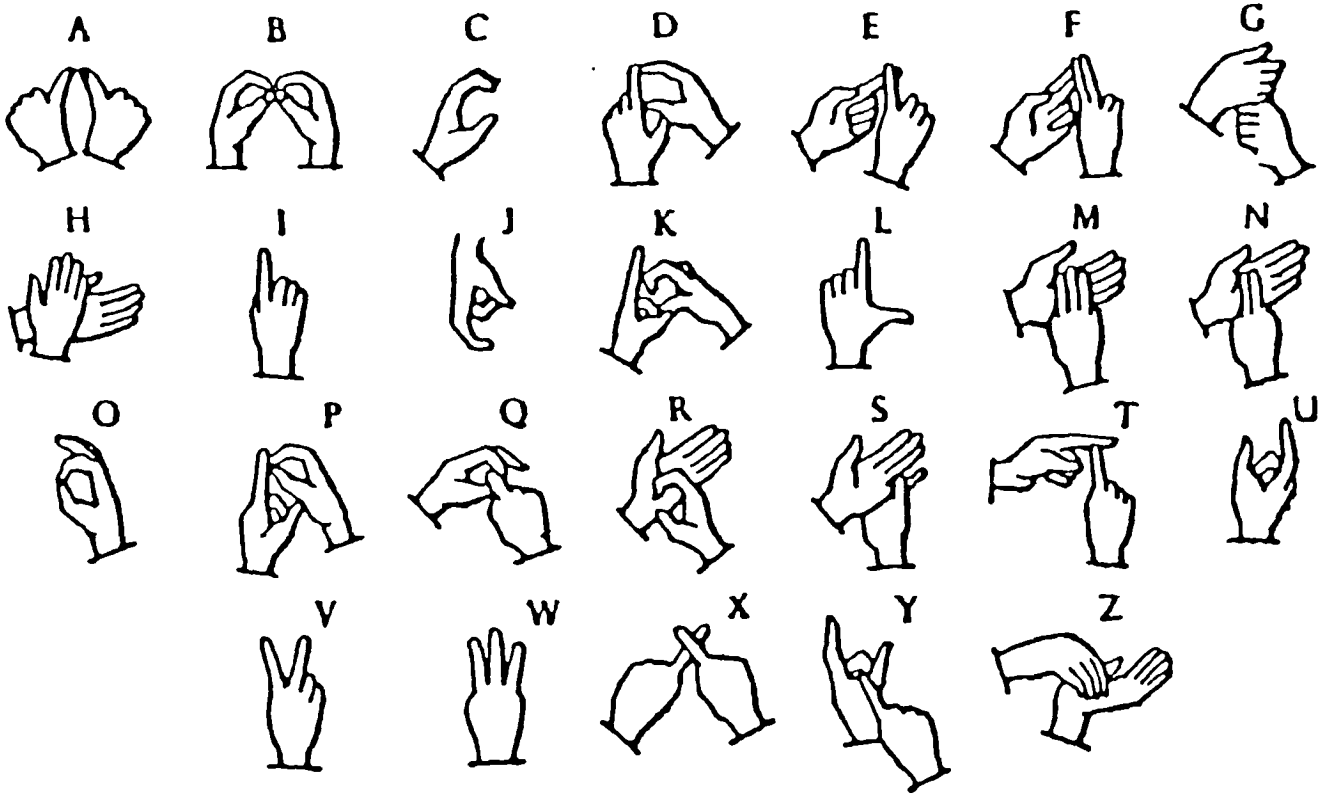


Figure I.25: The two-handed manual alphabet from India

(from Carmel, 1981)

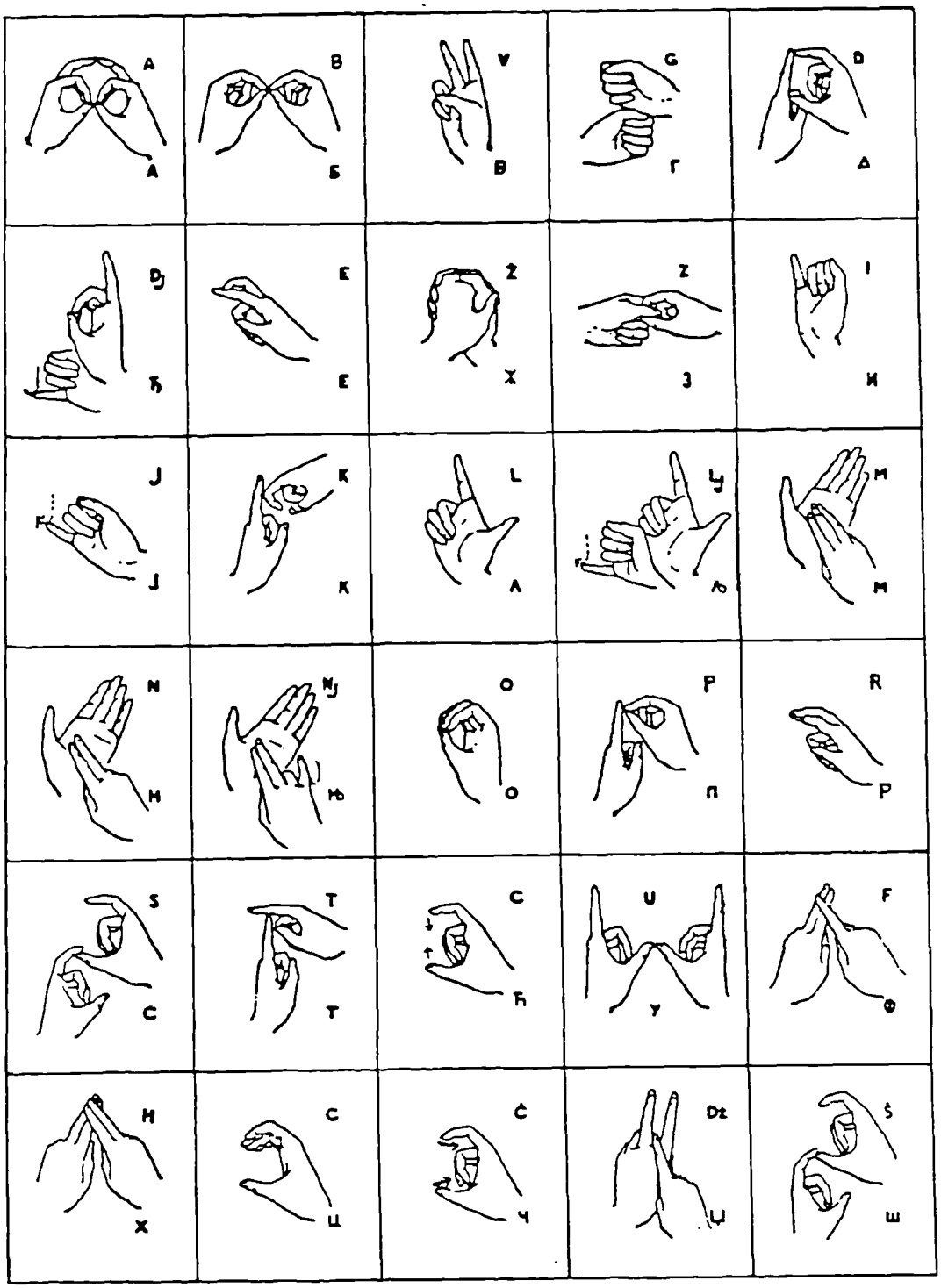


Figure I.26: The two-handed manual alphabet from the former Yugoslavia

(from Carmel, 1981)

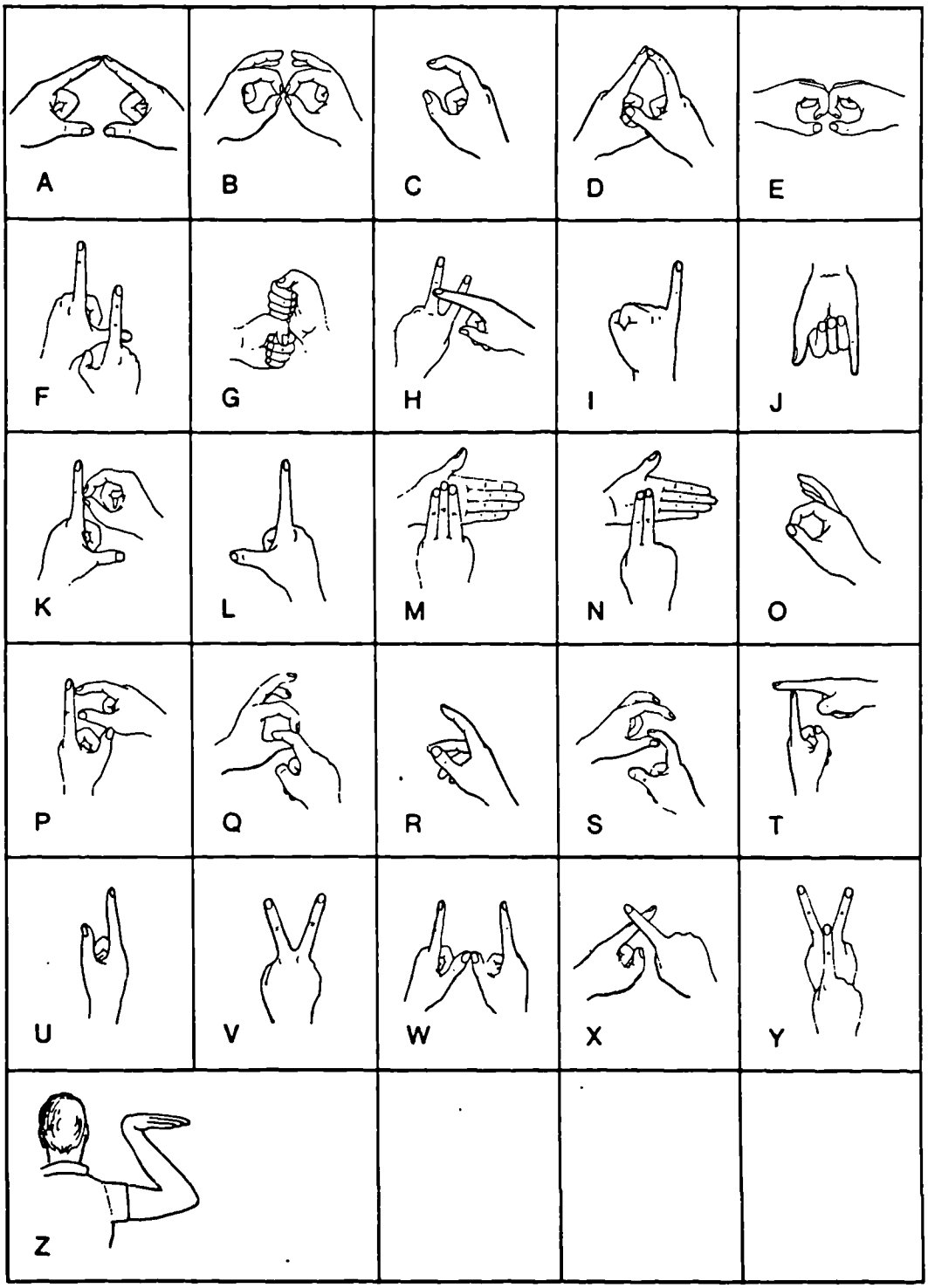


Figure I.27: The two-handed manual alphabet from Indonesia

(from Carmel, 1981)

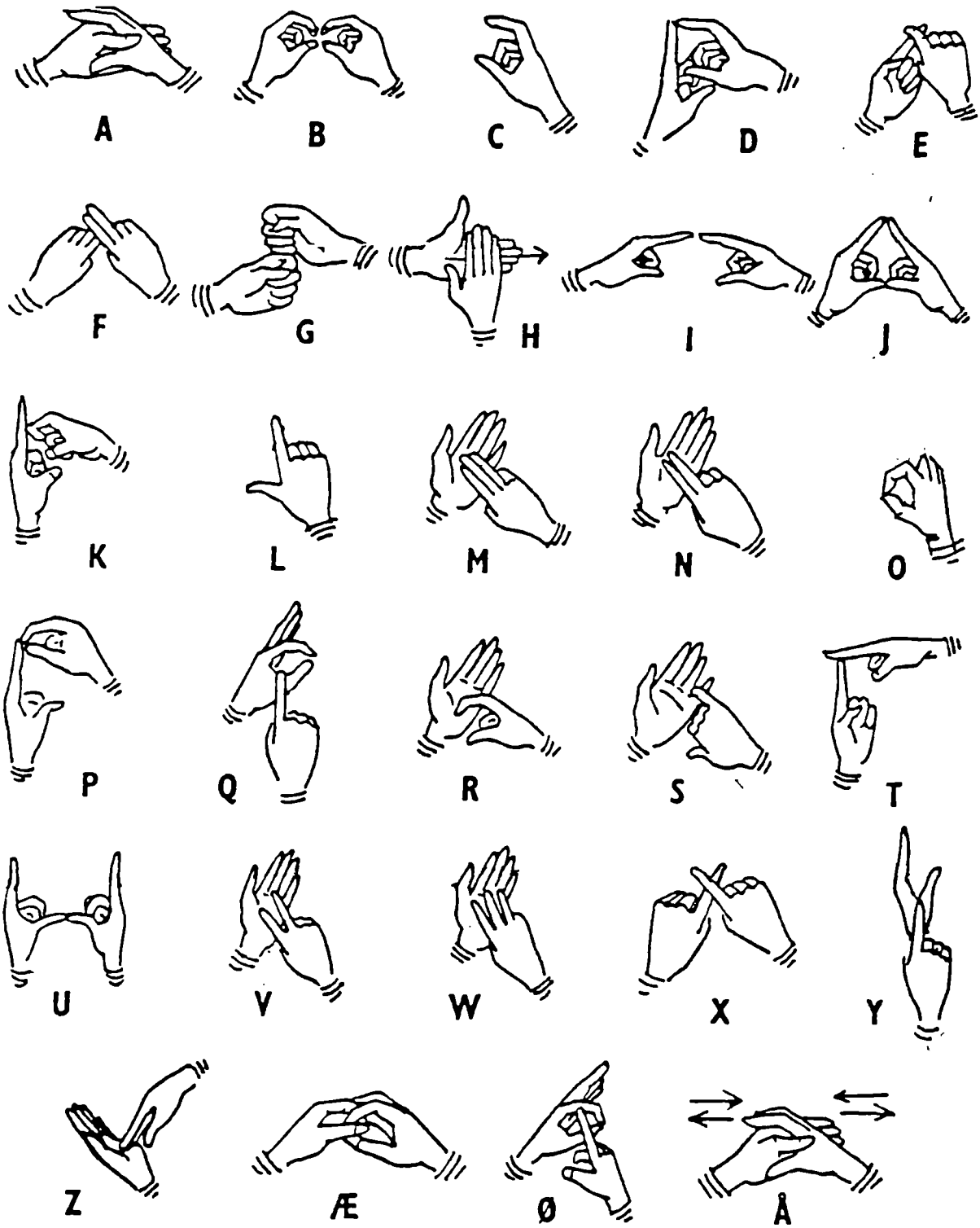


Figure I.28: The two-handed manual alphabet from Norway

(from Carmel, 1981)

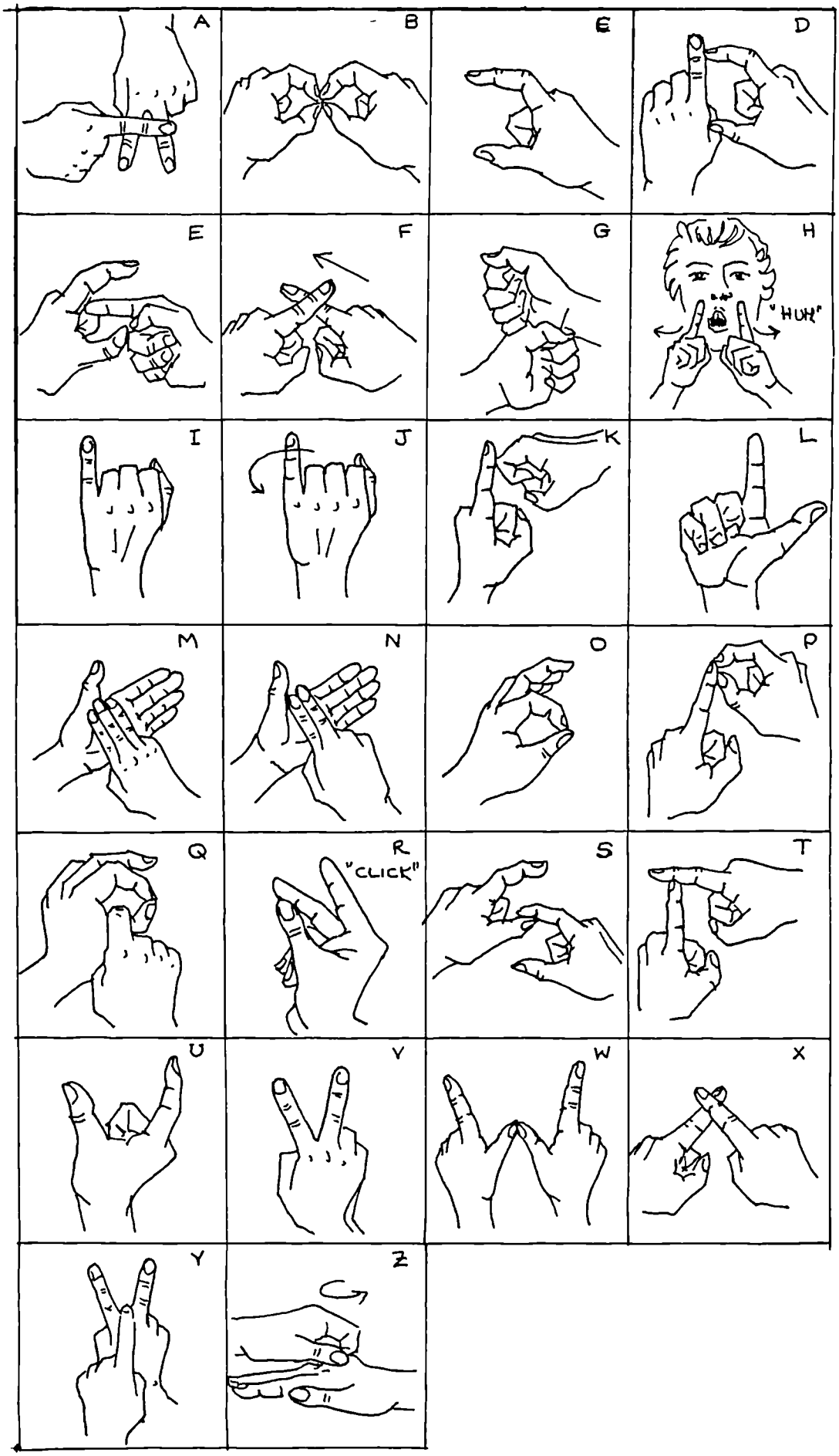


Figure I.29: The two-handed manual alphabet from Germany

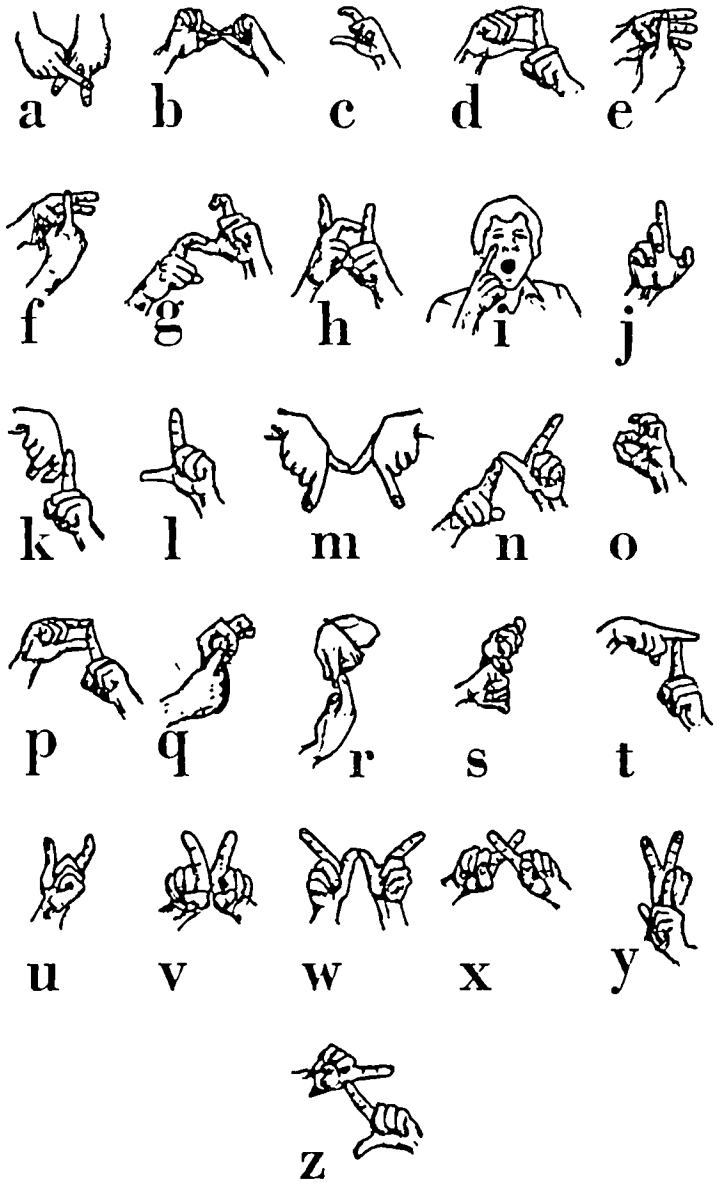


Figure I.30: The two-handed manual alphabet of Grand Cayman Island (from Washabaugh, 1981)

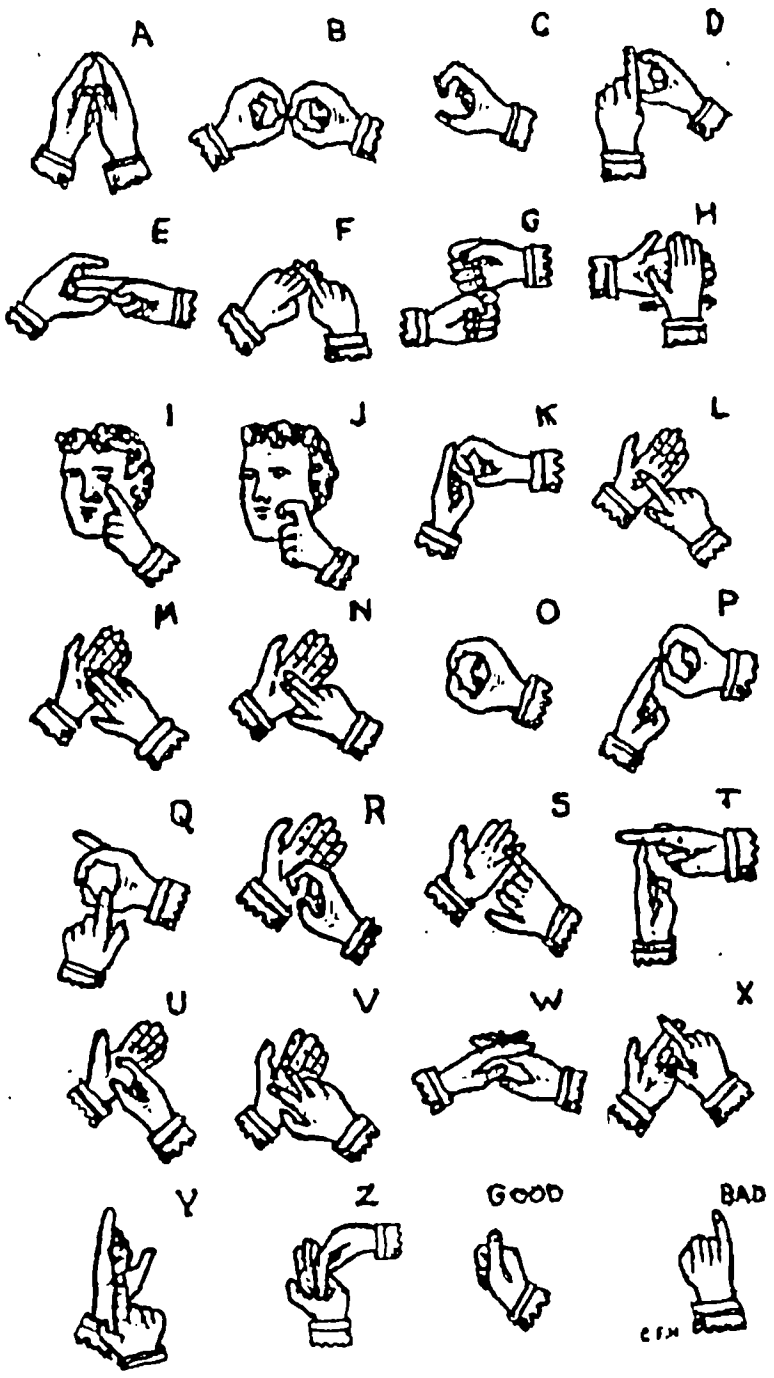


Figure I.31: The two-handed manual alphabet from the USA

(from Michaels, 1923)

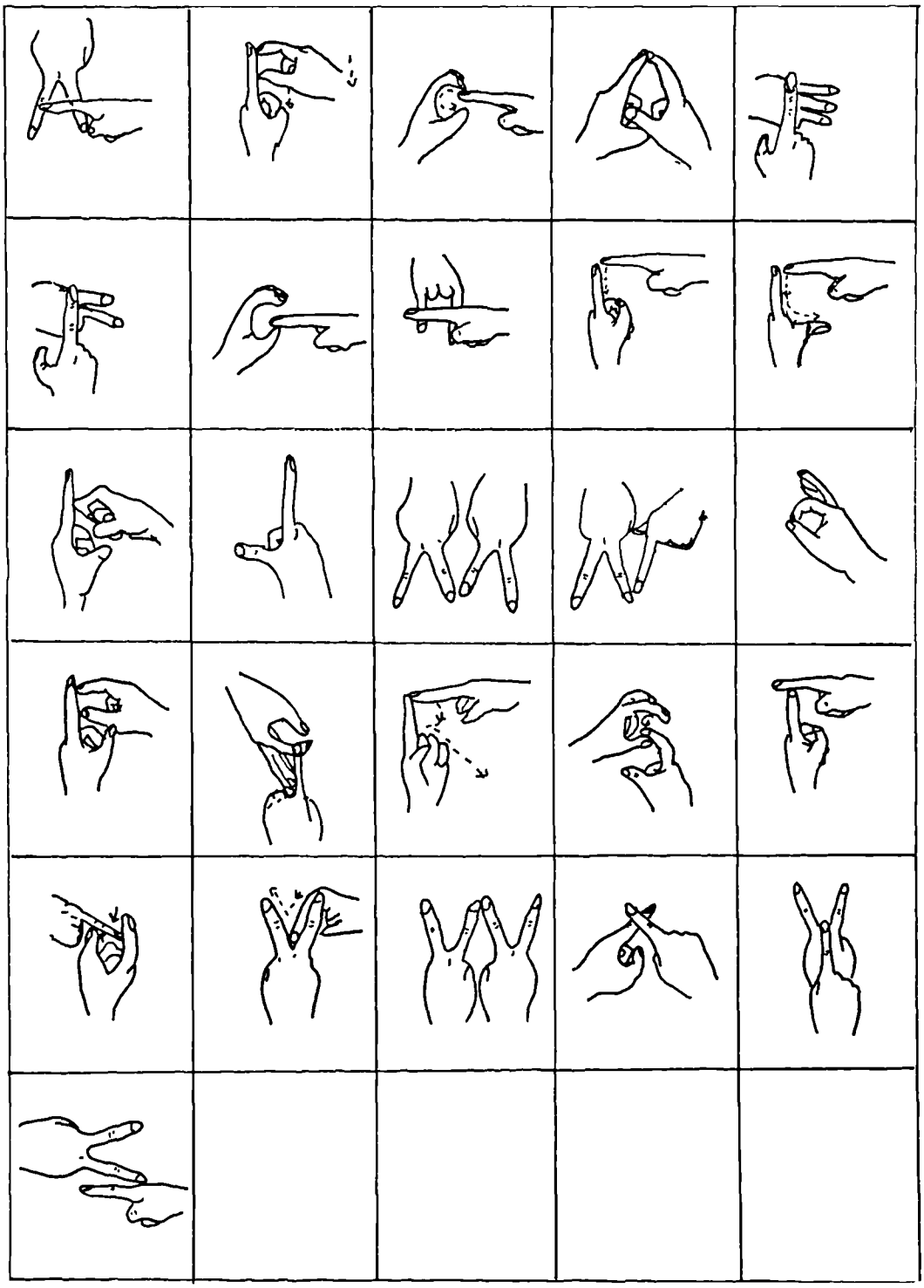


Figure I.32: The Cistercian manual alphabet (from Barakat, 1987)

APPENDIX II

MATERIALS FOR STUDY 3

The English words here are those that had given rise to instances of use of the manual alphabet by deaf signers on See Hear!

The words were arranged into categories:

1) Time and measurement

2) Acronyms

3) Words that gave rise to SMLS

4) Words that gave rise to abbreviations

5) Words that gave rise to full fingerspellings

6) Function words

1) Time and Measurement.

Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday.

January, February, March, April, May, June, July, August, September, October, November, December.

Second(s), minute(s), hour, day, week, month, year, century.

Inches, feet, yards, miles: centimetres, metres, kilometres.

Ounces, pounds: grammes, kilogrammes.

Pints, gallons: litres.

2) Acronyms.

AA, AGM, BBC, BDA, BDSC, BR, DIP, EEC, FYD, IRA, OAP, PR, RAF, TV, USA, WFD .

3) Words that gave rise to SMLS.

answer, club, cousin, daughter, father, game, government, information, insurance, kitchen, language, member, million, month, mother, natural, normal, Nottingham, old-fashioned, qualify, quality, quarter, question, toilet, year, yellow, young,

4) Words that gave rise to abbreviations.

Birmingham, Bristol, decibels, doctor, Edinburgh, example, excuse me, executive, Glasgow, grandfather, grandmother, hard of hearing, limited, Manchester, Mrs, Newcastle, parents, project, saint, subject, thousand.

5) Words that gave rise to full fingerspellings.

act, aids, art, bill, bus, city, code, day, do, dog, egg, fee, gay, ham, hobby, lab, law, leek, loop, map, news, poem, poll tax, pop, sex, son, team, zoo.

6) Function words.

But, for, if, of, so.

The following contains the responses of one deaf consultant interviewed for Study 3. It reveals when the consultant considered the use of fingerspellings to be acceptable, and with what meaning. It also shows the non-derived alternatives that the consultant might use. Comments within square brackets are comments upon the signer's comments or her signs, made in the analysis.

1) Days of the Week:

Monday: -m-m- or -m-o-n-

Tuesday: -t-t-

Wednesday: -w-w- or -w-e-d-

Thursday: -t-h-

Friday: -f- (with rubbing movement) or -f-r-i-

Saturday: non-derived sign or -s-a-t-

Sunday: non-derived sign or -s-u-n-

Consultant's comments: The use of the first syllable is for use with or by hearing people, especially teachers who would not accept the first letter.

2) Months of the year:

January: -j-

February: -f- (circular rubbing movement)

March: [non-derived sign]

April: -a-a-

May: -m-a-y-

June: -j-n-

July: -j-y-

August: -a-g-

September: -s-s-

October: 'O' handshape, shaken horizontally

November: -n-o-v-

December: -d-c-

Comments: Do know of people who use -j-a-n-, -f-e-b-, -m-a-r-h-, -a-a-, -m-a-y-, -j-u-n-, -j-y-,--a-u-g-, -s-e-p-, -o-c-t-, -n-o-v-, -d-e-c-, but that is not our way. That is what is taught by hearing teachers who don't accept the ones I gave, using the first letters.

3) Measurements:

a) Inches: -i-i- SMALL.

The two must come together (ie -i-i- alone would not be enough, and nor would SMALL) unless you are obviously talking about measurement.

b) Feet: use another sign, unless it's a measurement of wood or cloth, when you could use -f-t-.

c) Yards: -y- MEASURE, and non-manual features of eye-gaze into the distance. The -y- must be linked to a number.

d) Miles: use another sign. Some other people may use -m- [with a forward movement] but not me.

e) Metres: -m-m- eg 100 -m-m- or 25-m-, for example when swimming or running, although you must link what you are doing with the distance. Often with GOING-BACK-AND-FORTH.

f) Kilometres: -k-m-

g) Centimetres: -c-m-, but I'd never use it myself. Builders or graphic designers might use it, or might use -c-c- with SMALL.

h) Pounds: WEIGH if it is used alone or -l-b- used with a number.

i) Ounces: -o-z-, but must be linked with a number eg 1-o-z- or 2-o-z-.

j) Grammes: -g-r-a-m-m-, but I'd never use it. I don't like decimal.

k) Kilogrammes: -k-g-, or if you were talking about a new baby, maybe -k-k- plus WEIGH.

l) Pint: [non-derived sign].

m) Litre: [Same non-derived sign as for "pint"] I don't really use litres.

n) Gallons: -g-g- eg "how much petrol? 1-g-".

4) Time:

a) Seconds: -s- or another sign. If saying to someone "I'll give you 10 seconds to get it!" I use -s-. If saying "the seconds ticked by", I use the other sign.

b) Minutes: -m-m- eg 2-m- [Note: the consultant claimed to sign -m-m-, but only ever offered -m- in any examples]

c) Hours: [non-derived sign]. Some people might use -h-, eg 2-h-, but that's not my way.

d) Day: [non-derived sign] or -d-a-y-s-, or -d-y-, or -d-y-s-. I might use any of these.

e) Week: [non-derived sign] or -w-. It's not a case of saying one is right and one is wrong. I just pick either. NEXT-w- and LAST-w- are fine, as well as 2-w-, but I would not accept NEXT NEXT-WEEK or LAST LAST-WEEK, using the other signs.

f) Month: -m-, but it must have a number or a frequency with it, such as "next" or "every" or "last". Lip-patterns distinguish it from MINUTES if the context does not.

g) Year: -y- or other signs. Use another sign for age as in "years old", but -y- for any number of years. The -y- is a more formal sign than the another sign made at the ear.

h) Century: fingerspell in full if it was formal. If it was informal, I'd use a another sign like A-LONG-TIME-AGO. I might say something like "seventeenth century" as 17-c-, but only if I explained it first.

5) Acronyms:

a) AA: -a-a-, but must be linked with topic about breakdown.

b) DIP: -d-i-p-. I used to use DIP when I worked on the project, but it's very Hearing, and now I look back and think "Yuk!". I don't feel that DIP is right.

c) CACDP: I use CAP, because -c-a-c-d-p- is so difficult to fingerspell.

d) FYD: -f-y-d- or YOUTH GROUP, but I don't use it much.

e) WFD: -w-f-d- or WORLD DEAF CONGRESS. There is an international sign that is spreading here, too.

f) RAF: [non-derived sign].

g) BDSC: Another sign like SPORT THEIRS. I don't use BDSC much.

h) USA: [non-derived sign]. Would never sign -u-s-a- spontaneously, unless I was reading the letters, eg if they were written on a t-shirt.

i) LA: I would sign -l-a-, but would need a context eg "Over in America, LA.".

j) EEC: EUROPE. [Note the handshape for this sign was the 'O' hand, not the 'E' hand.]

k) AGM: -a-g-m- MEETING, never -a-g-m- alone.

l) BR: [non-derived sign].

m) PR: Sorry I don't know what it means.

n) BDA: Most people use -b-d-a-. It is a very common sign.

o) RNID: -r-n-i-d-.

p) BBC: -b-b-c-. I would never sign -i-t-v-, though, but -h-t-v- [local independent television] or -c-3. I would sign -c-4 for Channel Four.

q) OAP: I would use -o-a-p- a lot, but only to talk about them, not to address them. That would be rude. I'd use another sign.

r) IRA: I might refer to it if it was on the news, but otherwise I'd use IRISH ARMY or IRISH TROUBLES.

s) TV: -t-v- or another sign, but the other sign is a bit old-fashioned now. You'd need the sign showing the shape of the TV if you wanted to use it grammatically, eg to place flowers on top of it.

6) Words giving rise to SMLS

a) Quarter: old Scottish -q- [Note: consultant did not think of this as a manual letter -q-]. Might use -q-[but would put the index finger on the edge of the circle made by the passive hand, rather than in it]. Would use the former if carrying something. In maths, would use another sign using ONE and FOUR for "¼".

b) Quality: -q- (with a downwards movement), but also use another sign. The -q- is more formal.

c) Million: -m- (with a forwards movement). It doesn't need a numeral with it, but can stand alone.

d) Mother: -m-m- in Bristol, although in London, the sign uses the -m- against the temple. [Usually, use a 'B' active hand in -m-m-, but might use the citation form if it was very formal]. Mouth patterns show if I mean "mum", or "mother" or "mummy".

e) Qualify: -q- (drawn in to the body, and downwards). I might use this to a skilled, literate deaf person, asking "have you got any qualifications?". Otherwise, I'd use CERTIFICATE HAVE?, or PASSED HAVE?.

f) Father: -f-f-, which may have the mouth patterns to show if I mean "father" or "daddy". Children might use -f-f- or -d-d- for "daddy", and I might as a joke. Children in hearing families might fingerspell -d-a-d-, but I wouldn't.

g) Normal: [non-derived sign]. The sign using -n-, [with the active hand moving across the passive palm] is new but keeps popping up all over the place. I think it's very English, and I never use it.

h) Young: -y-y-. I always use this, and always with double -y- (-y-y-). There is a Scottish sign, but I never use it.

i) Government: -g-g-. Some people use another sign, maybe in London. I've never seen -g-o-v-t-.

j) Answer: [non-derived sign]. In the past I used -a-a- but it's disappeared now.

k) Question: sign from old Scottish -q-. [Note: consultant did not think of this as a manual letter.]

l) Club: [restructured sign using two 'B' hands brushing palms, and a -b-]. Or -c-, if in the context of a specific club, especially "deaf club". "Sports club" might use either of these signs.

m) Kitchen: I always use -k-k-, unless I am teaching hearing people, because they could not relate to the letters, so I use a more iconic sign for them.

n) Toilet: Several other signs suitable for various situations. -t-t- is one of the signs that is the same across regions.

o) Daughter: -d-d- or GIRL MINE. I've never seen -d-a-u-.

p) Cousin: -c- (circling, moving up and down or moving forwards and back). I think I may have seen -c- on the nose.

q) Nottingham: -n-n-h-a-m-. I might use -n-n- if someone knew where I was talking about.

r) Natural: [non-derived signs].

s) Language: sign from American manual letter .l., which everyone uses now. I would sign SIGN LANGUAGE, but not ENGLISH LANGUAGE. This sign is recent but seems to have taken over now.

t) Games: -g-a-m-e-s- or -g- with PLAY, or another sign. You can't just sign -g- alone.

u) Information: another sign or -i-i-, but I don't use -i-i- much myself.

v) Old-fashioned: [active hand of manual letter -f- at the nose, and then -f-]. The sign at the nose is not OLD, but half of an -f-.

w) Question: another sign, one-handed -q- moved out or two-handed -q- pulled towards the body.

x) Insurance: another sign, or touch the chin with index finger and then -i-i-, but you must touch the chin first, unless the topic is very clear.

y) Yellow: -y-y- or another sign, but I always use -y-y-.

7) Words giving rise to abbreviations:

a) Parents: -m-f-. In the past I used the mouth pattern "mother father" but now I use "parents". A lot of deaf people still use the former.

b) Example: -e-x- or other signs. People used to use -e-g- but that has died out now.

c) Project: -p-j-, but if you signed that at the deaf club, you'd have to explain it.

d) Doctor: -d-r-, but only for someone's title, not to refer to the job.

e) Bristol: -b-l-. In the past we used OUR TOWN. Other people use other signs.

f) Edinburgh: -e-d-h-.

g) Hard of Hearing: HARD HEARING or -h-h- or -h-o-h-. Mouth patterns should be from "hard of hearing", not "aitch oh aitch". I don't like "aitch oh aitch". [Note: consultant did spontaneously produce mouth patterns from "aitch oh aitch" until questioned about it, and then declared this unacceptable.]

h) Glasgow: -g- and a restructured -w- with the passive hand as a closed fist, or -g-w-. In the past we all used -g-w-, but now the restructured sign is very common.

i) Mrs: -m-r-s-, but only if you were writing it down.

j) Birmingham: -b-h-m- or -b-m-, or another signs.

k) Manchester: -m-c-, or MAN CHEST for a joke.

l) About: [non-derived]. Both -a-t- and -a-b-t- are very English and I don't like that, so I don't use it.

m) Saint: Another sign to talk about a saint, or fingerspell full if it was a name of the saint or a place or a church, but I'd never use -s-t-.

n) Newcastle: Another sign. Some people use -n-c-, but I never would.

o) Thousand: Another sign. -t-h- would be very English, but I've never seen it before.

p) Executive: -e-x- but only use it if on a committee.

q) Excuse me: Another sign in informal situations or with deaf people. I only use -e-x-ME with hearing people.

r) Subject: I never use the word. If I had to , I'd fingerspell it in full.

s) Grandmother: another sign with -m-m-, or -g-m-m- or -g-m-.

t) Decibel: Sorry, I don't know what that is.

8) words giving rise to full fingerspellings:

a) Son: -s-n- or MY BOY. Not -s-o-n-.

b) Egg: Another sign or -e-g-g-.

c) Map: Another sign or -m-a-p-

d) Ham: -h-a-m- or an extra-long -h-.

e) Bus: Another sign only. I've never seen -b-u-s-.

f) Law: -l-a-w-. It's more specific than the other sign, which could mean "rules" or "policy", so I like to fingerspell it.

g) Zoo: Another sign or -z-o-o-.

h) Bill: Another sign only.

i) Act: I might use -a-c-t- if I was talking about an Act of Parliament, but it would usually have an explanation with it.

j) Hobby: -h-h- or -h-o-b-b-y- if they don't understand. Or sign it another way like INTEREST or LIKE.

k) Sex: -s-x- or [restructured] -s-x-, but the latter is coarse. People don't talk about it much in Bristol. Older people might use -s-.

l) AIDS: -a-i-d-s- or maybe just -a-a-. Other places use a sign like the letter "A", but I don't like that because it looks like a triangle that has been cancelled or crossed out.

m) Fee: Another sign or MUST PAY.

n) Poll Tax: -p-t-a-x-.

o) News: Another sign.

p) City: Another sign.

q) Art: Another sign.

r) Loop: Another sign.

s) Lab: -l-b-

t) Gay: Another sign.

u) Leek: Another sign or -l-e-e-k- if you didn't understand me.

v) Poem: Another sign, or WRITE with the mouth pattern from "poem".

w) Team: Another sign or -t-, but not -t-e-a-m-.

x) Pop: Another sign.

y) Dog: Another sign. Maybe I'd sign -d-g- for some children.

z) Code: fingerspell fully and explain it.

9) Function words:

a) But: Another sign. I've seen -b-t-, but I don't use it.

b) For: Another sign. I only use -f-o-r- very rarely, if I am angry or to make a strong point.

c) Do: -d-o- or -d-, not often, but I do use it, and only as a verb, not as part of a question.

d) If: -i-f- if it was very emphatic.

e) Of: No, I don't use it.

f) So: Another sign or -s-o-, but I don't use -s-o-, because I think that's very English.

APPENDIX III

MATERIALS FOR STUDY 4

Place-name word form	Place-name
3 letter monosyllable - CVC	BIX CAM DON FOY HAM KEW LEY NEB PAR YAR
3 letter monosyllable - CVV	DEE HAA HOW KEA LEA YEO
3 letter bisyllable - VCV (where "y" is treated as a "vowel")	ABY ELY
3 letter monosyllable - VCV	IDE ORE
4 letter monosyllable - CVCC	BONT BOWD CARK COTT DISS FITZ HOFF HULL MULL NASH NESS
4 letter monosyllable - CVVC	CAAF QUIN RAIT
4 letter monosyllable - VVCV (where "y" is treated as a "vowel")	AIKE OYNE
4 letter monosyllable - CCVC (where "y" is treated as a "vowel")	BRYN CLUN DRAX DRON RHYN
4 letter bisyllable - VCCV	ACHA ACRE ALDE EMBO OGLE
4 letter bisyllable - CVCV	BALA FALA FOGO HURY JURA LANA LAXO PICA RIBY RORA
4 letter bisyllable - VCVC	ADUR ELIM ETAL ETON OBAN
Monosyllables of 6 letters or more	CLEISH CNICHT CRIEFF FFRIDD STRATH STREAT THORPE THREAVE THROSK THRUPP WHARLES
More than four letters - 1st syllable consonant cluster	CHIRTON CHOLSEY KNIPTON KNOLTON LLANARTH LLANDAFF SHAPWICK SHENTON THEALBY THETFORD WRANTAGE WRETTON
More than four letters - 2nd syllable consonant cluster	BARTHOL BEETHAM BELCHAMP BETHEL BISHAM BRAUGHING COSHAM FINCHAM GARSHALL SMEATHORPE WATCHET WORTHING

More than four letters - unclear spoken boundaries	BICESTER GLOUCESTER WORCESTER FULLSTOW RADSTOCK SHEBSTER
More than four letters - no 1st or 2nd syllable clusters	BERWICK BODMIN CAMBOURNE CROMER CULGAITH DOUGLAS DRUNZIE EDZELL ELGIN FALKIRK HOLWELL KENSALL MONTROSE POWICK RIDGEMONT RISBY RUDLOE SHEBFIELD SHOTWICK SMEATON
More than four letters - 2nd letter is low frequency	AKELEY AXFORD AZELEY EWELL EXTED IKEN IXWORTH OWSTON OXNAM UFTON
Trisyllables	ABERDEEN BALLIMORE BIDDISHAM BIRKENHEAD BIRMINGHAM CANTERBURY CARMUNNOCK CATTERICK DODDINGTON DOLGELLAU EDINBURGH FRASERBURGH GESTINGTHORPE HAMBLEDON HERSTMONCEUX HOLBERROW ILFRACOMBE INVERNESS KILMARNOUGH KIRKGUNZEON MIDDLESBOROUGH NOTTINGHAM OKEHAMPTON ROCHESTER STONEHAVEN TREDINNICK TWICKENHAM WALLINGFORD WARMINSTER WATERLOO
More than three syllables	ABERGAVENNY ABERYSTWYTH AUCHTERMUCHTY CAERLAVEROCK CHITTLEHAMHOLT MORETONHAMPSTEAD OSMOTHERLY

APPENDIX IV

MATERIALS FOR STUDY 5

A) Nouns that are not placed in space, but are used meaningfully within BSL signing space along a time-line.

Each sentence type repeated using the non-derived sign, the SMLS and a fingerspelling of the English word

1) The Police told me to wait for 1 week. I have been waiting for a very long time

a) I have been waiting now for 22 WEEKS

b) I have been waiting now for 6 WEEKS

c) I have been waiting now for 3 WEEKS

2) The Police told me to wait for 1 hour. I have been waiting for a very long time

a) I have been waiting now for 22 HOURS

b) I have been waiting now for 6 HOURS

c) I have been waiting now for 3 HOURS

B) Nouns that need to be placed in topographical space.

Each sentence type repeated using the non-derived sign, the SMLS and a fingerspelling of the English word. For each of these signs, one sentence articulated the sign itself in the required topographical location, and one articulated the sign in neutral space and placed the sign using indexical pointing. (For numbers 7, 8 and 9 there is no non-derived form of the sign.)

1) When I stayed in the student hall of residence, I had my own room but I did not have my own KITCHEN. Luckily there were a lot of KITCHENS. There was a KITCHEN on every floor.

2) When I stayed in the student hall of residence, I had my own room but I did not have my own kettle. Luckily there were a lot of KETTLES. There was a KETTLE on every floor.

3) The aim of the European Community is to have one GOVERNMENT for the whole of Europe. At the moment there are many different GOVERNMENTS because there is one GOVERNMENT in each country.

4) The aim of the business is to have one GARAGE for all its cars. At the moment there are many different GARAGES all around the town.

5) When I stayed in the student hall of residence, I had my own room but I did not have my own TOILET. Luckily there were a lot of TOILETS. There was a TOILET on every floor.

6) When I stayed in the student hall of residence, I had my own room but I did not have my own TELEPHONE. Luckily there were a lot of TELEPHONES. There was a TELEPHONE on every floor.

7) I went to watch the netball match at the school. All the MOTHERS were in one team and all the DAUGHTERS were in the other team. After the match the MOTHERS all stood in a line and applauded while the DAUGHTERS walked past. Then the DAUGHTERS applauded the MOTHERS.

8) I went to watch the football match at the school. All the FATHERS were in one team and all the SONS were in the other team. After the match the FATHERS all stood in a line and applauded while the SONS walked past. Then the SONS applauded the FATHERS.

9) The WFD EXECUTIVE committee has EXECUTIVES from all over the world. There are many different EXECUTIVES. Some are black, some are white, some are men and some are women.

C) Verbs that need to move through syntactic or topographical space. Each sentence type was repeated using the non-derived sign, the SMLS and a fingerspelling of the English word. For each of these signs, one sentence moved the sign through the space, and one articulated the sign in neutral space and moved an index through space. For number 3 and number 7 there is no accepted SMLS, so the SMLS here would be perceived as a nonce formation.

1) I REPRESENT the BDA
The BDA REPRESENTS me
The BDA REPRESENTS them
The BDA REPRESENTS them often

2) I want to PROPOSE something to the BDA
He wants to PROPOSE something to the BDA
The BDA wants to PROPOSE something to me
The BDA wants to PROPOSE something to me often

3) I want to GIVE to you

He wants to GIVE to you

You want to GIVE to me

You want to GIVE to me often

4) I ask them a QUESTION

They ask him a QUESTION

You ask me a QUESTION

You often ask me a QUESTION

5) I ANSWERED them

He ANSWERED me

They ANSWERED him

They often ANSWERED him

(location)

6) I VISIT lots of different places

They VISIT lots of different places

7) I TRAVEL TO lots of different places

They TRAVEL TO lots of different places

The full version of the test materials, as they were presented, may be seen in the video appendix.

APPENDIX V

SMLS GIVEN IN THE DICTIONARY OF BSL/ENGLISH

A - alcoholic, American, answer, automatic

B - n.a.

C - coffee, coca-cola, country council

D - daughter, Dad, Daddy

E - England, East

F - Dad, Daddy, Father, Friday, free, family

G - garage, geography, government, guarantee, Guiness

H - n.a.

I - (insurance, based on Irish manual letter)

J - n.a.

K - kitchen

L - n.a. (pound sterling?)

M - n.a.

N - north, natural, normal

O - n.a.

P - point, paper (promote?)

Q - qualification, qualify

R - recommend, recommendation

S - silver

T - teetotal, toilet, tv

U - uncle, university

V - vegetable, vegetarian, virgin, vodka, versus

W - week, west, worth

X - n.a.

Y - year, yellow, yoghurt, young

Z - n.a.

APPENDIX VI

RESPONSES TO STIMULI IN THE PLACE-NAMES STUDY
(STUDY 4)

DEAF	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	Cat 6	Cat 7	Pref
Subj 1	18	7	14	7	10	5	37	7
Subj 2	25	48	1	2	15	1	7	2
Subj 3	14	7	6	7	38	2	23	5
Subj 4	10	42	8	14	11	1	15	2
Subj 5	11	54	3	15	2	9	6	2
Subj 6	26	4	3	3	22	1	41	7
Subj 7	15	5	16	11	30	3	18	5
Subj 8	23	29	18	10	2	7	11	2
Subj 9	4	47	7	9	20	4	9	2
Subj 10	30	3	1	1	55	1	4	5

HEAR-ING	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	Cat 6	Cat 7	Pref
Subj 11	2	72	1	4	5	11	6	2
Subj 12	2	18	11	17	20	11	21	7
Subj 13	10	12	28	2	1	1	45	7
Subj 14	3	7	21	14	12	12	29	7
Subj 15	54	29	0	6	2	4	6	1
Subj 16	1	18	26	22	3	16	13	3
Subj 17	1	47	13	15	7	12	5	2
Subj 18	6	23	11	20	4	17	19	2
Subj 19	1	27	16	23	2	14	17	2
Subj 20	30	18	6	10	3	13	20	1

Table VI.1: Percentage of responses in each category for each subject in the place-names study.

Letter	Percentage deleted	Deletion out of total possible
a	95	191/200
b	80	16/20
c	n.a.	n.a.
d	96	173/180
e	99	376/380
f	72	58/80
g	90	36/40
h	92	202/220
i	n.a.	n.a.
j	n.a.	n.a.
k	88	246/280
l	89	178/200
m	84	301/340
n	90	450/500
o	97	97/100
p	92	37/40
q	n.a.	n.a.
r	92	1185/200
s	96	96/100
t	86	137/160
u	0	20/20
v	n.a.	n.a.
w	72	116/160
x	62	75/120
y	89	284/320
z	50	10/20

Table VI.2: Importance of the handshape of the final letter in its deletion. Table shows the number and percentage of deletion of first and last letter for words ending in each letter, in the place-names study

Letter	Percentage deleted	Deletion out of total possible
a	94	188/200
b	80	16/20
c	n.a.	n.a.
d	87	156/180
e	94	358/380
f	50	40/80
g	75	30/40
h	72	159/220
i	n.a.	n.a.
j	n.a.	n.a.
k	74	207/280
l	73	147/200
m	43	114/240
n	81	403/500
o	93	93/100
p	65	26/40
q	n.a.	n.a.
r	88	172/200
s	84	84/100
t	76	122/160
u	80	16/20
v	n.a.	n.a.
w	64	103/160
x	52	62/120
y	78	249/320
z	50	10/20

Table VI.3: Importance of the handshape of the final letter in its deletion. Table shows the percentage of deletion of the last letter in any abbreviation for words ending in each letter, in the place-names study

APPENDIX VII

NUMBER OF SMLS BEGINNING WITH EACH LETTER

Letter	% of responses	Letter	% of responses
V	N.A.	I	28
X	N.A.	W	30
Z	N.A.	P	34
O	13	D	35
M	15	F	35
T	18	N	35
E	19	K	36
C	20	R	37
S	20	Y	38
H	22	L	39
U	24	Q	43
B	25	J	45
A	26	G	48

Table VII.1: Percentage of SMLS responses to placenames beginning with each letter

	Nonce SMLS	Shorter Oxford
a	19	21
b	10	17
c	49	32
d	18	20
e	7	14
f	17	16
g	21	13
h	11	15
i	10	16
j	4	3
k	1	3
l	16	13
m	22	19
n	11	6
o	7	10
p	43	33
q	2	2
r	16	20
s	35	53
t	26	24
u	2	7
v	11	7
w	10	13
x	0	0
y	3	2
z	1	1

Table VII.2: Data from See Hear!: The number of nonce SMLS for each letter, compared to the proportionate number of words in the Shorter Oxford Dictionary beginning with each letter.

Figures in the right column are obtained by dividing the number of pages allocated to each letter by the total number of pages for all letters.

APPENDIX VIII

REFERENCES TO BSL/ENGLISH DICTIONARY FOR

SIGNS IN THE TEXT

Chapter 1
- PERCENT - 1705
- THOUSAND - p 846
- BROTHER - 133
- SISTER - 576
- CHILD - 211
- FLOWER - 620
- HAPPY - 1390

Chapter 2
- QUESTION - 848
- QUIET - 879
- THEATRE - 968
- WASH - 45
- SET-UP - 151
- DEPEND - 594
- FINISH - 976
- LESBIAN - 464
- LIVERPOOL - 464
- LUCK - 466

Chapter 4
- STAY - 651
- LIFT - 692
- REPAIR - 55
- CLEAR - 1313
- DETAIL - 868
- AMERICA - 1051
- CHEESE - 1598
- EUROPE - 1734
- FRANCE - 480
- VIDEO - 775
- WALK - 739
- LOVE - 1477
- SMOKE - 757
- ASK - 848
- GIVE - 1205, 1372, 1391
- TOW - 597

Chapter 5
- BROTHER - 133

Chapter 6
- KITCHEN - 262
- ANSWER - 433

Chapter 7
- DISCRIMINATION - 909

FORUM - 840
TOILET - 944
CRIPPLED - 561
LESS - 728
CAP - 254
ABSOLUTE - 1323
MAGIC - 1727
HELP - 150
SMOKE - 757
FAMILY - 695

Chapter 8
ILL - 931
TERRIBLE - 585
WORST - 927
DRIVE - 100
DEAF - 677
UNIVERSITY - 448
MOUTH - 814
FINGERSPELLING - 1174
STONE - 1150
HAVEN - 1647
KEY - 250
EWE - 929
FIELD - 1022
BALL - 1418
MORE - 1592
KNOW - 168
BARROW - 117

Chapter 9
WALES - 837
HOUSE - 694
QUALIFY - 598
MILLION - p846
THREE - p824
SIX - p824
TWENTY-TWO - p840
QUEEN - 1131
JEALOUS - 580
GOLD - 125
FRIDAY - 685
FEBRUARY - 683
FATHER - 684
FAMILY - 695
COFFEE - 638
SHARE - 1599
WORTH - 1050
QUALIFIED - 598
POINT - 628
IMPROVE - 866
DEVELOP - 1718
PROMOTE - 866
FRIDAY - 685

COLOUR - 1172
ENGLAND - 378
FRIDAY - 685
MILLION - p846
POINT - 628
QUESTION - 848
QUEUE - -q- + 1024
NATIONAL -n- + 990
GOLD - 125
SILVER - 913
COMMUNICATE - 1387 (using 'C' handshape)
CLASS - 840 (using 'C' handshape)
WORTH - 1050
VALUE - 131
EMERGENCY - 383
NAME - 674
SATURDAY - 4
MOTHER - 1569
WHY - 388
SHEEP - 931
VIDEO - 775
COFFEE - 638
CONFIDENCE - 646
KITCHEN - 262
GOVERNMENT - 1131
KETTLE - 935
GARAGE - 1363

Appendix IV
WEEK - 377
HOUR - 411
KITCHEN - 262
KETTLE - 935
GOVERNMENT - 1131
GARAGE - 1363
TELEPHONE - 944
PROPOSE - 349
GIVE - 1205
QUESTION - 848
ANSWER - 433
TRAVEL - 739

VIDEO APPENDIX

A: Materials for Study 5

B: Video reference illustrations

V.R. 8.1: FOR made using one hand

V.R. 8.2: OR made using one hand

V.R. 8.3: IF made using one hand

V.R. 8.4: -m-a-d-, -d-e-a-f- and -m-o-r-o-n- with a change in passive tab

V.R. 8.5: WEEK-END with a change in handshape

V.R. 8.6: POUNDS with a change in handshape

V.R. 8.7: MANCHESTER with a change in handshape

V.R. 8.8: PARENTS with a change in orientation

V.R. 8.9: WHAT with deletion and a change in meaning

V.R. 9.1: THREE-WEEKS, SIX-WEEKS and *TWENTY-TWO-WEEKS

V.R. 9.2: FRIDAY, FEBRUARY, FAMILY and FATHER

V.R. 9.3: EUROPEAN GOVERNMENTS vs HAMMER-IN-NAILS