POTENTIALLY PEDAGOGICALLY USEFUL 'PHONETICS'

IN THE CHINESE SCRIPT: THEIR

IDENTIFICATION AND CHARACTERIZATION

AN ABSTRACT OF A DISSERTATION

SUBMITTED TO THE FACULTY

OF THE GRADUATE SCHOOL OF EDUCATION

OF

RUTGERS

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BY

STEPHEN MICHAEL KRAEMER

IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE DEGREE

OF

DOCTOR OF EDUCATION

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ABSTRACT

In this dissertation, the Phonetic elements of
the Chinese script were examined for their potential
usefulness in the teaching and learning of Chinese
characters. A Potentially Pedagogically Useful (PPU)
Phonetic was defined as a Phonetic which indicates some
definite feature of pronunciation in all characters con-
taining it as a common element. In this way, it can
serve as a clue to the pronunciation of these characters,
and thus can serve as a potential aid for students learn-
ing Chinese.

With the above definition in mind, seven cate-
gories of PPU Phonetics were established based upon the
description of the Chinese sound system given by J.
DeFrancis in Beginning Chinese. Next, some 858 Phonetic
Series of characters (as compiled by L. Wieger in Chinese
Characters) were examined for the existence of PPU
Phonetics. The result was the compilation of some 579
PPU Phonetics, comprising all seven categories, which
were presented in Chapter III of the study.

Areas for further research were discussed in
the concluding section of the study, with the suggestion
being made to possibly extend the study to include the
identification of PPU Phonetics among the simplified
characters used in the People's Republic of China.

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CHAPTER I

BACKGROUND OF THE STUDY

Statement of the Problem

At a time when China is growing in international prestige, the Chinese language is receiving considerable attention from scholars and educators worldwide. In the United States, Chinese is taught as a foreign language in a number of colleges, universities, and secondary schools. Since World War II, the teaching of Chinese has been influenced by the development of intensive language programs, the audio-lingual method, and computerized instruction (Chen & Cheng, 1976). Despite these advances, however, the American student of Chinese still faces the tremendous burden of having to master one of the world's most complex writing systems. He not only needs to learn a non-alphabetic system that uses several thousand symbols (Leong, 1973), but must learn a variety of written styles as well (F. F. Wang, 1970). The result is a long and tedious process which "can seriously challenge one's staying power" (DeFrancis, 1966a, p. xxiv).

In order to alleviate some of the problems of students learning Chinese characters, several Chinese

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textbooks arrange and present characters according to their frequency of occurrence in actual Chinese publications. The student thus does not learn characters in random fashon, but learns the most frequent ones first, the less frequent ones later, and so on. When the student finishes the text and begins readng unedited Chinese, a relatively high percentage of the characters he encounters will be ones he has already studied (DeFrancis, 1966b). Although textbooks organized along the lines of character frequency may free the student from having to know rare or uncommon characters, they do not solve the major problem involved in character learning, namely memorization. Most textbooks in Chinese still present characters in a tedious one-by-one fashion, thereby leaving the student to deal with each character as "a distinct entity which must be assigned to memory by a completely rote process" (Astor, 1970, p. 30).

Astor (1970) contends that students need not memorize characters one by one, but rather that learning can be facilitated if one takes advantage of the internal structure of the character itself. Specifically, Astor is concerned with those characters known as Phonetic Compounds, which constitute some 90 percent of all characters (Ching & Ching, 1975). Phonetic Compounds consist of two parts: (1) the "Signific," which indicates in some general way the meaning of the character, and

(2) the "Phonetic," which suggests how the character should be pronounced. An example is the character 糖 pronounced táng, which means 'sugar.' It consists of the Signific 米 mǐ, which indicates that it is related to the general concept of cereals, and the Phonetic 唐 táng, "a word principally used elsewhere as a proper name and serving here only to give the pronunciation" (Chao, 1968b, p. 105). Astor contends that by proper exploitation of the clues to character meaning and pronunciation given by the Signific and Phonetic elements, character learning can be facilitated.

The Signific elements that comprise Chinese characters have been used by numerous scholars (Chinese and Western alike) both to teach and to classify characters. Many of the Significs have, through time, developed into a specialized set of classifiers known as "Radicals." The Radicals have been used in Chinese dictionaries to organize characters according to their graphic form. (All characters containing the same Radical are listed together, under that Radical.) Some 540 Radicals were first used by Hsu Shen in the Shuo wên chieh tzǔ dictionary (2nd century, A.D.). Later, in the 17th century, the number of Radicals was reduced to 214, which is the traditional number still used today (Huang, 1967). It is important to bear in mind that although several of the 214 Radicals are still relatively good

meaning-indicators today, many are no longer true Significs (Newnham, 1971).

The Phonetic aspect of Chinese characters has also been studied by many scholars, such as Hsu Shen and later Chinese philologists; as well as western scholars, such as Callery (1841, 1842), Chalmers (1911), Karlgren (1923a, 1923b, 1958), Soothill (1911), and Wieger (1927). In a manner analogous to the Radicals, several Western scholars have grouped together those characters that possess the same Phonetic element. The number of such Phonetic groups of characters varies, depending upon the compiler. Wieger, for example, lists 858; Soothill, 888; while Callery (1841) lists over 1000.

An example of a Phonetic group of characters is Phonetic Series #138 compiled by Wieger (1927) (Figure 1). In this Series, there are 11 characters, all pronounced mò, and all of which share the common Phonetic 末 . The Phonetic 末 is also a character by itself, pronounced mò, and is included as the first member of the Series.[1]

I will refer to a Phonetic such as 末 as being Totally Perfect, since all characters containing the

_____

[1]Although Wieger (1927) indicates character pronunciation by the Wade-Giles system of transcription, this author will use the pinyin system of romanization throughout the current study. For conversion between pinyin and Wade-Giles, the reader is referred to Legeza (1968) and F. F. Wang (1966, pp. 627-634).

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末   (The Phonetic)

末   mò   The end of a branch; the end; finally; small; the meanest part of; powder; a negative.

沫   mò   Foam; spittle.

抹   mò   To wipe clean, to rub, to besmear.

袜   mò   A girdle.

秣   mò   Fodder, to feed.

鞪   mò   Red boots.

烌   mò   A dull fire.

粖   mò   Broken grain, grits.

妺   mò   Tricks.

帕   mò   A kerchief, a turban.

茉   mò   The jasmine.

SOURCE: Wieger, 1927, p. 429; and Astor, 1970, pp. 34-35.

Figure 1. Wieger Phonetic Series #138

Phonetic have the same pronunciation, including tone.
Recognizing the pedagogical value of Totally Perfect
Phonetics, Astor (1970) has identified 63 such Phonetics
out of the total 858 Phonetics compiled by Wieger. For
seven of these 63, he has devised actual teaching lessons
to be used by the student for self-study. (Astor has
also identified some 50 near-Totally Perfect Phonetics,
where all characters in a Phonetic Series have the same
pronunciation, except one.)

Unlike the Phonetic 末 , however, most Phonetics
are not Totally Perfect, but rather head Series of
characters that share some, though not all features of
pronunciation. As Astor (1970) states, most of the
characters that comprise Phonetic Series

> have close though not identical phonological
> realization. This is to say, a group of
> characters with a common phonetic element may
> all be pronounced the same, differing only in
> the various tones or perhaps differing only in
> the feature of aspiration. (p. 65)

It is important to note that although Astor acknowledges
the existence of such non-Totally Perfect Phonetics, he
does not investigate the potential which these Phonetics
may have for the teaching of Chinese. Instead, he
directs his efforts mainly towards the identification
and teaching of Totally Perfect Phonetics.

Purpose of the Study

Astor's work represents an important contribution
to the field of Chinese language teaching, but is in
itself of limited scope. He has identified a total of
113 Phonetics that may hold some pedagogical value (63
that are Totally Perfect and 50 that are near-Totally
Perfect). These Phonetics and their Series comprise a
total of 771 characters. However, since the student of
Chinese must learn several thousand characters to attain
a good working knowledge of the language (W. S-Y Wang,
1973), the 771 characters identified by Astor represent
a relatively small number. Therefore, in order for the
student of Chinese to gain the maximum benefit from the
study of Phonetics and their Series, an investigation
into the pedagogical potential of those Phonetics not
identified by Astor should be carried out. It is the
purpose of this dissertation to identify and to
characterize such Potentially Pedagogically Useful
Phonetics.

Historical Development of the
Phonetic Compound Characters

To clarify the origin and nature of the Phonetic
Compound characters, a brief discussion of their
historical development will be presented.

Though the history of the Chinese writing system is long and complex, certain major stages in the formation of the characters can be identified. The earliest Chinese characters on record (dating from about 1400 B.C.) are "pictographs," or drawings of common objects. Examples of these are the characters 日 for 'sun' (originally written ⊙) and 月 for 'moon' (originally written 🌙). Soon, however, it became "necessary to extend this pictorial basis into more abstract or symbolic areas" (Newnham, 1971, p. 36), and a second group of characters (often called "ideographs") was developed. This group includes such characters as — 'one,' = 'two,' 上 'above,' and 下 'below.' A third type of characters, called "associatives," was also developed. Here a character took its meaning from "the interaction or association of more than one part." For example, the character " 好 'good; to love' consists of the character 'woman' on the left and that for 'child' on the right, their combination leading naturally to the verb or quality directly associated with them" (Newnham, 1971, p. 36).

In time, as the language developed the need for a greater number of written forms, a fourth type of characters, called "Phonetic loans" was developed. In principle, this type of character was formed as follows: The character of a spoken word would be lent to another,

homophonous word, which lacked a written form. Thus for example, there existed in the ancient language the word 'wheat,' which had the written form 朿 (now written 來). A homophonous word meaning 'come' also existed in the spoken language, but had no written equivalent. The character for 'wheat' was therefore lent to the latter, and the word 'come' also came to be written 朿 (now 來) (Karlgren, 1923b).

The creation of a fifth type of characters, our Phonetic Compounds, came about when the relatively primitive type of "phonetic" writing just described was extended and made more efficient by invoking two new principles: The first principle involved the addition of Significs to pairs or groups of Phonetic loans in order to further clarify the meaning of each character. For example, Karlgren (1923b) states that as the character 寸 for 'thumb,' pronounced cun in Mandarin,

> could not serve without modification for the word 'village.' Mand. ts'un, because that might lead to misunderstanding, . . . the picture for 'tree, wood' 木 (evidently the building material) . . . [was added, obtaining] a character 村 where the right part indicated a pronunciation identical with that of 寸 'thumb' . . . while the left part, a kind of determinative, showed that it was not the word for 'thumb' that was concerned, but the homophonous word which has to do with wood, i.e. 'village.' (p. 54)

The second principle used in the formation of Phonetic Compounds was the extension of the phonetic loaning process to groups of words which were not necessarily homophonous. If the various words in question were similar enough in sound, this was considered sufficient. As to the motivation for non-homophonous borrowing, Karlgren (1923a) states that

> There must have been various reasons why the scribe did not always put in exact homophones as phonetics, but allowed a certain discrepancy in sound. In many cases the reason may have been his desire that the phonetic should in the same time help to express the meaning. In other cases the fact is undoubtedly due to the difficulty in finding exact homophones. . . . the Chinese words may in the early stages have been very well distinguished phonetically and the number of homophones was perhaps not greater than in the Indo-European languages. (p. 17)

In time, thousands of Phonetic Compound characters were created according to the principles outlined above, and eventually came to comprise, as we have seen, some 90 percent of all Chinese characters (Ching & Ching, 1975).

The majority of Phonetic Compound characters, according to Karlgren (1923a), were composed over 2,000 years ago. Since that time, the spoken language has undergone its own development, and the sound values that Chinese characters once had in ancient times have changed over the centuries. However, the graphic form of the characters has remained essentially the same

since the time the Phonetic Compounds were created
(Karlgren, 1923b). Therefore, though most of the
Phonetic Compounds have virtually the same form today as
they did some 2,000 or more years ago, they are pronounced
in Modern Chinese quite differently from the way they were
pronounced in ancient times. It is not surprising, in
light of these historical developments, to find that when
groups of Phonetic Compounds are examined today (such as
in the Wieger Phonetic Series), a significant number of
non-Totally Perfect Phonetics are found.

CHAPTER II

DESIGN OF THE STUDY

In order to identify and characterize Potentially
Pedagogically Useful (PPU) Phonetics in Chinese, it is
necessary to (1) select an adequate description of the
Chinese sound system, (2) establish categories of PPU
Phonetics based upon this description, (3) select Phonetic
Series for study, and (4) examine these Series for the
existence of PPU Phonetics.

Selecting an Adequate Description of the Chinese Sound System

Although the Chinese sound system has been des-
cribed by numerous authors in a variety of ways, the
description put forward by John DeFrancis in Beginning
Chinese (1963) will be used in the current study. The
DeFrancis description has been chosen for the following
reasons: (1) It serves as a basis for the 12-volume
DeFrancis textbook series, currently one of the most
popular series of textbooks used to teach Chinese as a
foreign language. (2) It is restricted to the modern
dialect of Peking. (3) It uses the pīnyīn system of
romanization as the sole method of sound transcription.

It should be noted that not all aspects of the Chinese sound system as described by DeFrancis will be included here. Rather, only those aspects considered necessary and relevant to the current study will be discussed in the following section. For the reader who is already familiar with DeFrancis, he or she may want to skip this section and turn directly to page 22. All readers, however, should note that some modifications in DeFrancis have been made by this author (see pp. 19-21).

The Modern Dialect of Peking

Of the roughly two-thirds of a billion people who speak some form of Chinese, by far the largest number (about 500 million) speak Mandarin. The rest speak one of a number of mutually unintelligible forms of Chinese, such as Cantonese, Wu, Hakka, Amoy-Swatow, and Foochow. Mandarin can itself be divided into several mutually intelligible forms, of which the dialect of Peking is the most important. The preeminence of the Peking dialect is primarily due to two factors. First, an approximate form of the dialect has served as the most socially acceptable form of speech in China for many years. Second, it has become the basis for what is currently being promulgated as the standard national language in Mainland China (DeFrancis, 1963, p. xviii).

The Pīnyīn Romanization System

Like most major textbooks written for the study
of Chinese, the DeFrancis series uses a romanization
system to transcribe the sounds of Chinese alphabetically
and thereby aid the student in learning both the spoken
and written language. DeFrancis uses the pīnyīn system
of romanization, which has been used in Mainland China
for over 20 years. According to DeFrancis (1963), the
use of pīnyīn "provides not only a serviceable pedagogical
tool but also an introduction to a great deal of material
published in China." Furthermore, it is likely to have
"wider and wider application in the future in view of the
current attempt to promote a single national language in
China" (p. xviii).

The Sounds of the Peking Dialect

The sounds of the Peking dialect are presented
by DeFrancis in terms of syllables and their component
parts. Each syllable can be divided into an initial, a
final, and a tone. In the majority of cases, the initial
consists of the initial consonant of a syllable, while
the final consists of all the vowel and consonant sounds
that follow the initial. The tone is the particular
pitch pattern associated with each syllable. For example,
the syllable mā contains the initial m, the final a, and
the - tone; while the syllable māng contains the initial

m, the final ang, and the - tone. In a relatively small number of cases, a syllable does not begin with a consonant, and thus consists of a final and tone only. Syllables of this type are said to have a "zero initial" (symbolized by ∅). An example is the syllable āi, which consists of the ∅ initial, the final ai, and the - tone.

The Tones

The Peking dialect uses four basic tones, which can be described in terms of a speaker's voice range (Figure 2). The "first tone" or "high level" tone
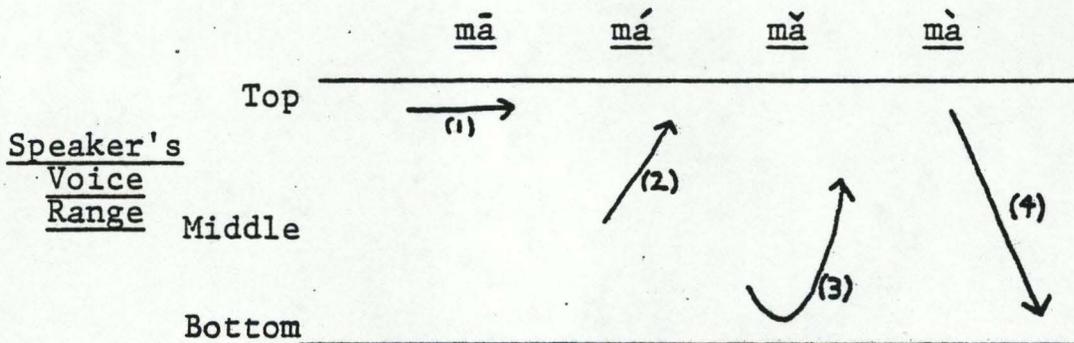
SOURCE: DeFrancis, 1963, p. xix.

Figure 2. Tones of the Peking Dialect

(1) begins near the top of the voice range and continues there for its duration. The "second tone" or "high rising" tone (2) begins at the middle of the voice range and rises rapidly to the top. The "third tone" or "low dipping" tone (3) begins below middle range, falls to

the lowest part of the range, and then rises above the
middle. The "fourth tone" or "high falling" tone begins
near top-range and falls rapidly toward the bottom
(DeFrancis, 1963, p. xix).

In the pīnyīn romanization, the four tones are
indicated by diacritical marks which correspond to the
illustrations in Figure 2, namely ‾ for the first tone,
′ for the second tone, ˅ for the third tone, and ˋ
for the fourth tone. The tone marks are always written
above letters representing vowel sounds. Where there is
one vowel letter in a syllable, the tone is written above
this, as in the syllables mā, má, mǎ, and mà (see Figure
2). Where there are three vowel letters in a syllable,
the tone is written above the middle letter, as in miāo
and guāi. When two vowel letters are present, the tone
is written over the first letter, except when this is i
or u (for example, mái, méi, móu in the former case and
jiā, jiē, zhuā in the latter) (DeFrancis, 1963, p. xix).

It is important to note that tones in Chinese
"are an integral part of a syllable and help to dis-
tinguish quite different words, in much the same way as
the vowels a and u do in English hat and hut" (DeFrancis,
1963, p. xix). The four ma syllables mentioned above
illustrate this concept well, for they are all separate
words as follows: mā meaning 'mother,' má meaning
'hemp,' mǎ meaning 'horse,' and mà meaning 'to scold.'

The Initials

In Beginning Chinese, DeFrancis arranges the various initials of the Peking dialect (excluding Ø) into three sub-sets, which he calls the "simple initials" (b, p, m, f, d, t, n, l, g, k, h), the "retroflex and sibilant initials" (zh, ch, sh, r; and z, c, s, respectively), and the "palatal initials" (j, q, x). The initials in each set are described in terms of the pronunciation of selected English words (see DeFrancis, 1963, pp. xix, xxiii, xxvi).

In addition to showing the approximate equivalents of the various initial sounds in terms of English words, the initials can also be indicated in I.P.A. (International Phonetic Alphabet) notation. Table 1 gives the initials in both I.P.A. transcription, according to Kratochvil (1968) (in brackets), and in pinyin. Table 1 also gives the place and manner of articulation of the various initials, which are all consonant sounds.

The Finals

The finals of the Peking dialect are arranged by DeFrancis into several "Groups," according to the beginning letter with which the finals are spelt in the pinyin system. (For example, the Group-a finals (a, an, ang, ai, ao) all begin with the letter a). Like the initials, the finals in each Group are also described in

TABLE 1

INITIALS OF THE PEKING DIALECT IN I.P.A. AND P̄INȲIN

Manner of Articulation ↓		Place of Articulation →	Bilabial	Labio-dental	Dental	Alveolar	Alveopalatal	Palatal	Velar
Stop	Unvoiced	Non-aspirated	[p-]b-			[t-]d-			[k-]g-
Stop	Unvoiced	Aspirated	[pʻ-]p-			[tʻ-]t-			[kʻ-]k-
Nasal	Voiced	--	[m-]m-			[n-]n-			
Fricative	Unvoiced	--		[f-]f-	[s-]s-		[ʂ-]sh-	[ɕ-]x-	[x-]h-
Fricative	Voiced	--					[ʐ-]r-		
Lateral	Voiced	--				[l-]l-			
Affricate	Unvoiced	Non-aspirated			[ts-]z-		[tʂ-]zh-	[tɕ-]j-	
Affricate	Unvoiced	Aspirated			[tsʻ-]c-		[tʂʻ-]ch-	[tɕʻ-]q-	

SOURCE: From Kratochvil (1968, p. 25). For definitions of the term used here the reader is referred to the List of Linguistic Terms in Kratochvil (1968, pp. 171-182).

terms of the pronunciation of English words (see DeFrancis, 1963, pp. xx-xxii, xxv, xxvii).

Modifications in the DeFrancis Finals

The er final.--According to DeFrancis (1963), the sound segment er "is pronounced like the ur of fur in the first and second tones, and between -ur and are in the third and fourth" (p. xxvii). Since a number of Chinese characters are pronounced with the segment er, it will be included in the current study.[1] However, instead of considering er to contain an r final as DeFrancis suggests, this author will follow the convention of Chao (1968a) and Chi ch'u han yü (1971), which consider er to be a combination of the final er and the Ø initial.

The "i" finals.--For sound segments that contain the retroflex and sibilant initials followed by the letter i (e.g., zhi, chi; zi, ci, etc.), DeFrancis invents the term "i" to refer to the sounds represented by the letter i in these environments. (He uses "i" to distinguish these finals from the 'i-final,' that is the i "as in machine"--see DeFrancis, 1963, p. xxv). Regarding the "i" finals, DeFrancis (1963) states the following:

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[1]The term "segment" is defined by this author as a syllable minus the tone, or the combination of an initial and final (without the tone).

The retroflex consonants are spoken by themselves with a sort of r-sound final, so that Chinese sh, for example, sounds somewhat like English shr in shrill. Similarly, the sibilant consonants are pronounced by themselves with a sort of buzzing sound like a prolonged z in buzz. These final sounds of both groups of consonants are written with the letter i. (p. xxiv)

Instead of the ambiguous symbols "i" used by DeFrancis, or i used in pīnyīn, this author will use the symbols ι and ɿ to refer to the retroflex-i and sibilant-i finals respectively, when they are written alone.[1] (The letter i will continue to be used for the 'i-final.') When these finals are combined with initials, the regular pīnyīn convention (the letter i) will be used. In such initial-final combinations or segments, the pīnyīn spelling is unambiguous, since the three i-spelt finals always occur with different initials (i.e., they are in complementary distribution). Table 2 illustrates how the three i-spelt finals will be written in their various contexts in the current study. For further discussion concerning the retroflex-i and sibilant-i finals, the reader is referred to Chao (1968, pp. 19, 24), Hartman (1944, pp. 31-32), and Howie (1976, pp. 6, 8-11).

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[1]The terms "retroflex-i" and "sibilant-i" finals will refer to the i-spelt finals that occur after the retroflex and sibilant initials respectively. The symbols ι and ɿ are traditional symbols used in Chinese phonology, and were originally developed by the Sinologist Bernhard Karlgren (see Howie, 1976, p. 10).

TABLE 2

WRITTEN CONVENTIONS FOR THE i-SPELT FINALS

Final	Final Written Alone	Final-Plus-Initial Combinations in Pinyin
Retroflex-i	ʅ	zhi, chi, shi, ri
Sibilant-i	ɿ	zi, ci, si
i "as in machine"	i	bi, pi, mi, di, ti, ni, li, ji, qi, xi, yi

As has already been done for the initials, the finals of the Peking dialect can also be given in I.P.A. notation. Table 3 is a table of all finals in both pīnyīn and I.P.A. transcription.

Spelling Changes in Certain Finals
When Combined with the Ø Initial

When a final combines with an initial, the resulting segment is usually spelt by simply combining the spellings of the constituent initial and final.[1] For example, the segment bi is spelt by placing the initial b and final i together (b + i → bi). However, when the Group-u, -i, and -ü finals combine with the Ø initial, they undergo certain spelling changes. These can be seen in Table 4.

Establishing Categories of Potentially
Pedagogically Useful Phonetics
Based on the DeFrancis
Description of the
Chinese Sound System

For purposes of the present study, a Phonetic will be termed Potentially Pedagogically Useful (PPU) if it can be shown to indicate some definite feature of pronunciation in all characters containing it. In this way, it can serve as a clue to the pronunciation of these characters, and thus can at least potentially serve as an

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[1]When the Group-ü finals are combined with initials, the umlaut is usually dropped. The segments nü, lü, nüe, and lüe are exceptions.

TABLE 3

FINALS OF THE PEKING DIALECT IN PĪNYĪN
AND I.P.A.

Category	Pīnyīn[a]	I.P.A.[b]
Group-a Finals	a	A̰
	an	an
	ang	aŋ
	ai	ai
	ao	au
Group-o/e Finals	o	ɔ [c]
	e	ɤ
	en	ən
	eng	ʌŋ
	ei	ei
	ou	ou
	ong	oŋ
Group-u Finals	u	u
	ua	uA̰
	uo	uɤ
	uai	uai
	ui	uei
	uan	uan

TABLE 3 (Continued)

Category	Pinyin[a]	I.P.A.[b]
Group-u Finals (Continued)	un	uən
	uang	uaŋ
	ueng	uʌŋ
Group-i Finals	i	i
	ia	iA
	iao	iɑu
	ie	iɛ
	iu	iou
	ian	iɛn
	in	in
	iang	iɑŋ
	ing	iŋ
	iong	iɔŋ
Group-ü Finals	ü	y
	üe	yɛ
	üan	yan
	ün	yn
The er Final	er	ɚ

TABLE 3 (Continued)

Category	Pinyin[a]	I.P.A.[b]
The Retroflex-i Final (ɻ)	i	ʅ [d]
The Sibilant-i Final (ɿ)	i	ɯ [e]

[a]Pinyin values from DeFrancis (1963).

[b]I.P.A. values from Chao (1968a, p. 24), except where indicated.

[c]From Legeza (1968, p. 32).

[d]Approximate I.P.A. equivalent from Howie (1976, p. 10).

[e]Approximate I.P.A. equivalent from Howie (1976, p. 10).

TABLE 4

SPELLING CHANGES IN GROUP-u, -i, AND -ü FINALS
WHEN COMBINED WITH THE ∅ INITIAL IN PĪNYĪN

Final	Final Plus ∅ Initial
Group-u	
u	wu
ua	wa
uo	wo
uai	wai
ui	wei
uan	wan
un	wen
uang	wang
ueng	weng
Group-i	
i	yi
ia	ya
iao	yao
ie	ye
iu	you
ian	yan
in	yin
iang	yang
ing	ying
iong	yong

TABLE 4 (Continued)

Final	Final Plus Ø Initial
Group-ü	
ü	yu
üe	yue
üan	yuan
ün	yun

SOURCE: From DeFrancis (1963, pp. xxiii, xxvi-xxvii).

aid for students learning Chinese. It is the intention
of this author to identify and characterize such PPU
Phonetics and to make the results known to both students
and teachers of Chinese. Furthermore, it is the hope of
the author that the Phonetics identified in the current
study will eventually be tested in actual classroom
situations, so that their ultimate usefulness can be
determined.

In order to identify a PPU Phonetic, one must
identify those features of pronunciation which are
carried by all characters in a given Phonetic Series
(i.e., in those characters that share a common Phonetic,
including the Phonetic as a character by itself). Since
Chinese characters are predominantly monosyllabic (Chao,
1968b, p. 102), one is essentially comparing syllables
when one examines the pronunciation of characters in a
Phonetic Series. According to the DeFrancis description
of the Chinese sound system given above, each syllable of
the Peking dialect contains three parts, namely an
initial, a final, and a tone. In order to identify a
Phonetic as being PPU based upon this description, one
must show that all characters sharing a given Phonetic
are pronounced with the same syllable part or combination
of parts. This requirement leads, in theory, to seven
possible categories of PPU Phonetics, which can be
described as follows:

(1) Totally Perfect

When all characters in a given Phonetic Series have the same pronunciation, including tone, the common Phonetic of the Series will be called Totally Perfect. An example is the Phonetic 丈 , which is pronounced zhàng in all characters containing it. (See Wieger, 1927, Phonetic Series #13, p. 399.)

(2) Segment Perfect

When all characters in a given Phonetic Series are pronounced with the same segment (i.e., when all characters have the same pronunciation except for tone), the common Phonetic of the Series will be called Segment Perfect. An example is the Phonetic 壬 , which carries the segment ren in all characters containing it. (See Wieger, 1927, Phonetic Series #66, p. 411.)

(3) Initial Perfect

When all characters in a given Phonetic Series are pronounced with the same initial, the common Phonetic of the Series will be called Initial Perfect. An example is the Phonetic 叉 , which carries the initial ch in all characters containing it. (See Wieger, 1927, Phonetic Series #12, p. 399.)

(4) Final Perfect

When all characters in a given Phonetic Series are pronounced with the same final, the common Phonetic

of the Series will be called Final Perfect. An example
is the Phonetic 反 , which carries the final <u>an</u> in all
characters containing it. (See Wieger, 1927, Phonetic
Series #55, p. 409.)

(5) Tone Perfect

When all characters in a given Phonetic Series
are pronounced with the same tone, the common Phonetic
of the Series will be called Tone Perfect. An example
is the Phonetic 兀 , which carries the ＼ tone in all
characters containing it. (See Wieger, 1927, Phonetic
Series #36, p. 404.)

(6) Initial-Tone Perfect

When all characters in a given Phonetic Series
are pronounced with both the same initial and tone, the
common Phonetic of the Series will be called Initial-
Tone Perfect. An example is the Phonetic 戾 , which
carries the initial <u>l</u> and the ＼ tone in all characters
containing it. (See Wieger, 1927, Phonetic Series #375,
p. 479.)

(7) Final-Tone Perfect

When all characters in a given Phonetic Series
are pronounced with both the same final and tone, the
common Phonetic of the Series will be called Final-Tone
Perfect. An example is the Phonetic 式 , which carries

the final ʅ and the ˋ tone in all characters containing
it. (See Wieger, 1927, Phonetic Series #236, p. 450.)

Selecting Phonetic Series for Study

The Phonetic Series to be selected for study will
be the 858 Series compiled by L. Wieger in his second
edition of Chinese Characters (1927). In the text,
Wieger sets down each Phonetic Series as follows: First,
the Series is given a number (from 1 to 858) and a graphic
heading, which normally corresponds to the common Phonetic
of the Series. Next, those characters that share the
common Phonetic are listed. Since the common Phonetic
is usually a character by itself, it is included as the
first member of the Series (see Figure 3).

In addition to the character itself, the pro-
nunciation of each character, indicated in Wade-Giles
transcription, and its English translation are also given
(see p. 4, footnote 1). Where the pronunciation of the
characters in a Series differ, the characters are set
into sub-groups of identical pronunciation, disregarding
tone. These sub-groups are then set apart by solid
lines. For example, in Wieger Phonetic Series #187, all
characters pronounced zhou are placed in one sub-group;
all characters pronounced chou are placed in a separate
sub-group (see Figure 3).

187

州   (The Phonetic)

州   zhōu   A Department.

洲   zhōu   A continent.

———————————

酬   chóu   To pledge with wine; to repay.

詶   chǒu   To answer.

掫   chǒu   To grasp.

SOURCE: Wieger, 1927, p. 440.

Figure 3. Wieger Phonetic Series #187

Examining Wieger for the Existence
of PPU Phonetics

Each of the 858 Wieger Phonetic Series will be
examined to see whether or not the common Phonetic of
the Series falls into one of the seven PPU categories
mentioned above. (Since Astor, 1970, has already
identified a number of Totally Perfect Phonetics in
Weiger--see p. 6--this author will identify only those
Totally Perfect Phonetics not already characterized by
Astor.) For example, consider Wieger Phonetic Series
#187 (Figure 3, above). One can see that the common
Phonetic of this Series (州) is not Totally Perfect,
since the characters in the Series have three different
pronunciations, namely zhōu, chóu, and chǒu. Similarly,
it is not Segment Perfect, since the characters exhibit
more than one segment pronunciation (i.e., zhou and
chou). The Phonetic is not Tone Perfect (there are three
tones in the Series: — , ╱ , ╲); nor is it Initial
Perfect (the two initials zh and ch are present). As far
as Finals are concerned, all characters are pronounced
with the Final ou; and thus the Phonetic is Final Perfect.

Alternate Pronunciations

In some cases, more than one pronunciation is
given for a character in a particular Wieger Phonetic
Series. In these cases, the pronunciation of the
character that will lead to the greatest amount of sound

agreement among all characters in the Series will be
chosen. For example, in Wieger Phonetic Series #141,
the character 帑 is listed with the pronunciations nú
and tǎng. Since the rest of the characters in the Series
are pronounced with the segments nu, nao, or na, the
pronunciation nú will be chosen for 帑 , making the
common Phonetic of the Series (奴) Initial Perfect (n).
If the pronunciation tǎng had been chosen, there would
have been no common feature of pronunciation shared by
all characters in the Series, and the Phonetic 奴 would
have been termed No Category.

Dealing with the Wieger Notes

In order to point out certain etymological
phenomena to the reader, Wieger appends various characters,
along with explanatory notes, to many of his Phonetic
Series. Since the characters listed under these notes
often affect the PPU category which a particular Phonetic
is assigned, the treatment given such notes in the cur-
rent study will be discussed here in detail.

"Abbrev. in"

At the bottom of certain Phonetic Series, Wieger
appends the notation "Abbrev. in" [Abbreviation in],
under which he lists one or more characters. These
characters contain an element which is homographic to
the common Phonetic of the Series, but which in Wieger's

opinion does not function as a Phonetic. It serves
rather, in Wieger's (1927, p. 397) words, as "an arbi-
trary abbreviation used by the scribes." Since the
graphic unit referred to does not function as a Phonetic,
those characters containing it will not be considered
part of the Phonetic Series proper, and will be excluded
from consideration when studying the Series.

"It is radical in"

Under this note, Wieger appends to several
Phonetic Series certain characters that contain an ele-
ment that is often homographic to the common Phonetic
of the Series. However, instead of serving as a Phonetic
in the characters listed, the graphic element referred
to serves as a Signific. It should be noted that
although Wieger uses the term "radical" here, he clearly
means the term Signific as it has been used in this study
(see pp. 2-4 above), and not the term Radical as it
refers to the 214 dictionary classifiers (see also
Wieger, 1927, pp. 14-15). Since any graphic unit which
is noted as "radical [Signific] in" a character clearly
functions as a Signific and not a Phonetic, all
characters containing such units (i.e., all characters
listed under the "radical in" note) will be excluded
from consideration when studying any given Phonetic
Series.

"It is unconnected with"; "Not to
be confounded with"; "To be
distinguished from"; "Nothing
to do with"

These notes are appended by Wieger to Phonetic

Series solely for contrastive purposes. Since the

characters listed under such notes are clearly unrelated

to the characters in any Phonetic Series proper, they

too will be excluded from consideration when studying a

given Phonetic Series.

"For the following, see L. [Lesson]
____"; "Compare L. ____"; etc.

At the bottom of several Phonetic Series, Wieger

appends the notation "For the following, see L. [Lesson]

____"; or "Compare L. ____" (or something to this

effect), under which he lists one or more characters.

This note refers the reader to a specific "Etymological

Lesson" (found in the first part of the Chinese Characters

text), where explanations concerning the appended

characters are given. In certain cases, the appended

characters contain an element which is homographic to

the common Phonetic of the Series. In such cases, the

Lesson mentioned by Wieger will be consulted by this

author in order to determine whether or not the graphic

element in question functions as a Phonetic in the

appended characters. If it does, the characters will be

included as part of the Phonetic Series proper. If it

does not, the characters will be excluded from the
Series.

"It may be found in"; "It is perhaps found in"; etc.

Under this type of note, Wieger appends to cer-
tain Phonetic Series those characters that contain an
element which is usually homographic to the common
Phonetic of the Series. Here, however, Wieger appears
to be uncertain as to whether or not the graphic element
in question functions as a Phonetic in the appended
characters. In such borderline cases, the appended
characters will be examined to see if they share the same
features of pronunciation as the characters in the
Phonetic Series proper. If they do, they will be
included as part of the Series proper; if not, they will
be excluded from the Series. For example, in Wieger
Phonetic Series #147, the Phonetic 本 is Final Perfect,
with the final en being shared by all characters in the
Series proper. Since the character 鉢 (under the note
"It is perhaps found in") is pronounced bō and thus does
not carry the final en, it will be excluded from the
Series. (See Wieger, 1927, p. 431.)

"It is phonetic contracted in"

Wieger uses this note in two basic ways, First,
he uses it to show that certain characters possess the

common Phonetic of a Series, but in a graphically reduced or "contracted" form. For example, in Wieger Phonetic Series #98, the common Phonetic of the Series is 勹 . However, in the characters 旬 and 訇 , the Phonetic takes the contracted form 勹 . In this situation, since the Phonetic takes more than one graphic form, the Series in question will be dealt with under the section of this study entitled "Graphic Variants" (see p. 41, below).

Secondly, Wieger uses this note to append to a Series those characters containing an element which is homographic to the common Phonetic of the Series. For example, in Wieger Phonetic Series #103 (Figure 4), Wieger appends the characters 珊 , 跚 , and 姗 , which he lists under the note, "This is phonetic contracted in." All three characters contain an element which is homographic to the common Phonetic of the Series, namely 册 . The purpose of the note, "This is phonetic contracted in" is to comment on the origin of the appended characters, namely to indicate that etymologically speaking, the three characters actually contain the character 删 (shān) as a Phonetic, which has been contracted to the form 册 . What is important to note is that this contracted Phonetic is now homographic to the common Phonetic of the Series (册). In a case such as this, since the graphic unit repeated in the appended characters functions as a Phonetic in these characters, the

103

冊冊　(Common Phonetic of the Series)

冊　chái

―――――

柵　zhà

―――――

删　shān

"This is phonetic contracted in"

珊　shān

跚　shān

姍　shān

SOURCE: Wieger, 1927, p. 419; and Mathews, 1943, p. 748.

NOTE: The English translation of the characters as well as four characters listed under the note, "It is radical in" are not shown here.

Figure 4. Wieger Phonetic Series #103

characters will be included for consideration in studying the Phonetic Series.

Modifications in the Wieger Phonetic Series

Derived Phonetics

One of the properties of the Chinese writing system is that certain Phonetic Compound characters (formed by combining a Signific and a Phonetic) can in turn serve as Phonetic elements in other Phonetic Compounds. For example, the Phonetic Compound 巻 , which contains the Phonetic 关 (see Wieger Phonetic Series #191) serves in turn as a Phonetic in the Compound character 倦 (see Wieger Phonetic Series #350). This is a fairly common phenomenon, and one can find several such examples in the Wieger Phonetic Series. Phonetics of this type will be called Derived Phonetics, since they are, in essence, derived from other Phonetics. (Karlgren, 1958, p. 153, calls the former "secondary Phonetics" and the latter "primary Phonetics.")

For purposes of identifying Phonetics that are Potentially Pedagogically Useful, the Derived Phonetics that are formally listed in Wieger (i.e., that head their own Phonetic Series) will be treated in the same manner as Phonetics in general, as described above. However, in addition to the Derived Phonetics listed in Wieger, one can identify in Wieger a considerable number of Derived Phonetics that are PPU, but that do not head their own

Phonetic Series. Instead, they are listed by Wieger under the original or "primary" Phonetic. Phonetics such as these will also be included in the present study. For example, in Wieger Phonetic Series #58 (headed by the Phonetic 分), the characters 盆 , 湓 , and 葐 are listed. Although Wieger does not mention the fact, it is clear that the Phonetic Compound 盆 is repeated as a graphic unit in the characters following it (湓 and 葐). Furthermore, it is an element that indicates the pronunciation in these characters, since all three characters are pronounced pén. Therefore, the character 盆 is itself a Derived Phonetic which is Totally Perfect.

Graphic Variants

In certain Wieger Phonetic Series, characters are listed that contain the given Phonetic in more than one graphic form or variant. For example, in Wieger Phonetic Series #78, the Phonetic occurs as two variants: 卞 , and 弁 . In the Series, the characters 汴 , 忭 , and 抃 contain the variant 卞 ; while the characters 昇 , 拚 , and 笄 contain the variant 弁 . The two variants 卞 and 弁 also occur as characters by themselves. (See Wieger, 1927, p. 414.)

Wieger may acknowledge the existence of graphic variants in a number of ways. He may list each variant

of a Phonetic at the top of the Series (e.g., Wieger Phonetic Series #78, #131); he may point out the etymological relationship between the variants (e.g., Wieger Phonetic Series #131 and Wieger Etymological Lesson #54 F); or he may append a note to the Series, such as the note "It is phonetic contracted in" in Wieger Phonetic Series #98 (see p. 38 above).

Regardless of how Wieger presents them, all graphic variants will be dealt with in the current study as follows: First, all characters containing each variant of a given Phonetic will be placed into separate groups. Next, if all the characters in any one group are found to share common features of pronunciation that are not shared by all the characters in any other group, then this first group of characters will be considered to form a separate Phonetic Series, with its variant being the common Phonetic of the Series. This variant, now considered a separate Phonetic, will then be examined to see if it falls into any of the seven PPU categories. If it does, it will be identified as a PPU Phonetic. This process will be repeated for all the variants of any given Phonetic. Depending upon the relationship between form and pronunciation of characters that contain graphic variants of a Phonetic listed in Wieger, one or more such variants may come to be considered separate Phonetics in this study. On the other hand, the

relationship may be such that the variants in question
will not be considered as separate Phonetics, but rather
simply as alternate forms of the same Phonetic, as
originally presented by Wieger.

Wieger Phonetic Series #78 provides one illustra-
tion of how graphic variants of a given Phonetic may come
to be considered separate Phonetics in this study. In
this Series, there are two variants of the Phonetic,
namely 卞 and 弁 . The Compound characters 汴 , 忭 ,
and 抃 (all pronounced biàn) share the first variant 卞
(also pronounced biàn) as a common element. The Compound
characters 昇 , 拚 , and 笲 (pronounced biǎn, pīn, and
fán respectively) share the second variant 弁 (pronounced
biàn) as a common element. In this case, the two variants
are taken to be separate Phonetics, with the first
variant 卞 being Totally Perfect (biàn), and the
second variant 弁 being termed No Category. (See Wieger,
1927, p. 414.)

In some instances, a particular variant of a
Phonetic is contained in only one character in a Series.
For example, in Wieger Phonetic Series #11, there are
two variants of the Phonetic: 丁 and 𠄌 . The variant
丁 is shared by the vast majority of characters (such
as 打 , 叮 , 仃 etc.). The variant 𠄌 is found only
in the character 成 . In a case such as this, the
single character containing the second variant of the

Phonetic will be examined to see if it shares the same features of pronunciation as the rest of the characters in the Series. If it does, it will be considered part of the Phonetic Series proper, and will be included in the study. If not, it will be excluded from the Phonetic Series. In Wieger Phonetic Series #11, all characters containing the Phonetic in the form 丁 are pronounced with the final _ing_, and thus the major variant 丁 is Final Perfect. Since the character 成 (containing the variant 丁) is pronounced _chéng_, and does not carry the final _ing_, it will be excluded from the Series.

Pronunciation Verification

In certain instances, it may be necessary to verify the pronunciation of characters listed in the Wieger Phonetic Series. This situation may arise because a given pronunciation in Wieger is either obsolete, a misprint, or is in some way unreadable (e.g., a letter or tone mark is missing or obscured). If and when it becomes necessary to check the pronunciation of a character in any Wieger Phonetic Series, the character in question will first be searched for elsewhere in Wieger, namely in the "Lexicon by Order of Radicals" (Wieger, 1927, pp. 665-820). This "Lexicon" is essentially a separate dictionary, containing characters which are arranged according to the 214 Radicals or classifiers.

If further checking of the pronunciation of a character becomes necessary, outside sources will be consulted, such as DeFrancis (1970), Fenn (1963), Mathews (1943), Anderson (1972), Soothill (1911), and the Chung wên ta tz'ŭ tien (1962-1968). Subsequently, when the pronunciation of any character in the study is taken from any source other than a Wieger Phonetic Series, this fact will be noted in Chapter III.

Compiling the Results

After the 858 Wieger Phonetic Series have been examined for the existence of PPU Phonetics, the results will be compiled and tabulated, and will be presented in Chapter III of the current study. Each of the seven PPU categories will be given along with those Phonetics that have been found to comprise each category. For each PPU Phonetic that is identified, pertinent information will be given in a series of five columns, from left to right, as follows (see p. 53): (1) The first column (labelled #) gives the number of the Phonetic, and refers to the Wieger Phonetic Series in which it was found. (2) The second column (labelled P) gives the Phonetic itself. (3) The third column (labelled Pr) gives the pronunciation, in pinyin, of the Phonetic when it occurs as a character by itself. (4) The fourth column (labelled S) gives the sound or features of pronunciation, in pinyin, that are

shared by those characters containing the Phonetic. (For the finals $\imath$ and $\perp$, see Table 2 and page 20, footnote 1). (5) The fifth column (labelled C) lists or specifies the characters (in Wieger) that contain the Phonetic as a common element, and includes the Phonetic as a character by itself. The characters in column C will be specified either by referring to the Wieger Phonetic Series in which they occur, or by writing out the characters individually. For the former, the term "W.S. #__" will be used in column C to refer to all characters listed in any given Wieger Phonetic Series. For the latter, the 'P' convention will be used, as described under "Specifying Characters That Share a Derived Phonetic," below. The following are some examples of how characters containing a common Phonetic will be specified in various situations throughout Chapter III.

Specifying Characters in a Wieger Phonetic Series with No Appended Characters

A good example of this kind of character specification is found under Final Perfect Phonetic #55, which is identified in Chapter III as follows (see p. 87):

(1)	#	P	Pr	S	C
	55	反	fǎn	an	W.S. #55.

Here "W.S. #55" refers to all the characters listed in Wieger Phonetic Series #55.

Specifying Characters in a Wieger Phonetic
Series with Appended Characters

Two examples of this kind of character specifi-
cation are found under Final Perfect Phonetics #17 and
#52, which are identified in Chapter III as follows (see
pp. 86-87):

(2) #   P   Pr   S   C
     17   久   jiǔ   iu   W.S. #17, excl. M

Here "W.S. #17, excl. M" refers to all the characters in
Wieger Phonetic Series #17, excluding those characters
listed under the note "It is perhaps found in" (M).

(3) #   P   Pr   S   C
     52   中   zhōng, ong   W.S. #52, excl. R, L
                  zhòng

Here "W.S. #52, excl. R, L" refers to all the characters
in Wieger Phonetic Series #52, excluding those characters
listed under the notes "It is radical in" (R) and "Com-
pare L. 153 B" (L). (See Wieger, 1927, p. 408.) (Also
note that Phonetic #52 (中) has two alternate pro-
nunciations (zhōng and zhòng), both of which are listed
under the column labelled Pr).

Throughout Chapter III, the following abbreviations
will be used to refer to all characters listed under any
given Wieger note:

          A : "Abbrev. [Abbreviation] in"

          R : "It is radical in"

U   :   "It is unconnected with"; "Not to be con-
          founded with"; "To be distinguished from";
          "Nothing to do with"

L   :   "For the following, see L. [Lesson] ___";
          "Compare L. ___"; etc. (or other notes
          to this effect = etc.)

M   :   "It may be found in"; "It is perhaps
          found in"; etc.

Cd   :   "It is phonetic contracted in"

excl. :   "excluding"

Specifying Characters That Share a Derived Phonetic

In the examples just given, it is convenient to specify characters that share a common Phonetic by referring to the Wieger Phonetic Series in which they occur. This also holds true for a Derived Phonetic that heads its own Series in Wieger, since such a Phonetic is treated like any other Phonetic in the study (see p. 40 above). However, for a Derived Phonetic that does not head its own Series in Wieger, it is often more convenient to write out the characters that share the Phonetic individually. An example is the Totally Perfect Phonetic #35a, which is identified in Chapter III as follows (see p. 53):

(4) #   P   Pr   S   C
     35a   沱   máng   máng   P, 甹

Here, each character in column <u>C</u> is written with the
recurring Phonetic element being indicated by the letter
'P,' while the rest of the character is written normally.
In addition, 'P' written alone stands for the Phonetic
when it occurs as a character by itself. Thus in the
example given, the characters in column <u>C</u> are 汔 and 芫,
which are written out as 'P' and 甘 respectively. (Note
that the Phonetic 汔 is also given in the <u>P</u> column.)
This 'P' convention not only simplifies considerably
the writing of characters for the current study, but also
enables the reader to clearly see the opposition of the
Phonetic and Signific elements in Phonetic Compound
characters. Furthermore, the number of the Phonetic here
is referred to as "35a." The number 35 refers to Wieger
Phonetic Series #35, where the Phonetic and the
characters containing it are found. The letter 'a'
indicates that the Phonetic is Derived. The same number-
ing convention will be used for all Derived Phonetics
that do not head their own Series in Wieger. When more
than one Derived Phonetic is found in any given Wieger
Phonetic Series, consecutive letters of the alphabet
will be used (i.e., 'a,' 'b,' 'c,' 'd,' etc.). (See,
for example, Tone Perfect Phonetics #89a and #89b,
Chapter III, pp. 101-102.)

     Since a Derived Phonetic that does not head its
own Series in Wieger and the primary Phonetic upon which

it is based (see p. 40) are both found in the same Wieger
Phonetic Series, the characters that share the <u>primary</u>
Phonetic can be specified (1) by referring to the Wieger
Phonetic Series in which they occur, and (2) by excluding
the characters that share the Derived Phonetic. The only
exception is the Derived Phonetic itself, which occurs
as a member character in both the primary and Derived
Series. For example, Final Perfect Phonetic #56 is
identified in Chapter III as follows (see p. 87):

(5)   <u>#</u>   <u>P</u>   <u>Pr</u>   <u>S</u>   <u>C</u>

   56   方   fāng   ang   W.S. #56, excl. 傲 (D)

Here "W.S. #56, excl. 傲 (D)" refers to all the
characters in Wieger Phonetic Series #56, excluding 傲 ,
which is more properly considered to share a Derived (D)
Phonetic. (傲 is found under column <u>C</u> of Segment Per-
fect Phonetic #56a as 仍 , see p. 66.) It should be
noted that the Derived Phonetic itself (the character
放) is listed under both the Derived Phonetic (as 'P'
in column <u>C</u> of Segment Perfect Phonetic #56a) and the
primary Phonetic (as part of "W.S. #56" in column <u>C</u> of
Final Perfect Phonetic #56).

Specifying Characters That Share
a Graphic Variant of a Phonetic

An example of this kind of character specifi-
cation is found under Totally Perfect Phonetic #78, which
can be identified as follows:

(6) **#**   **P**   **Pr**   **S**   **C**
78   卞   biàn   biàn   P, 氵卩 , 忄卩 , 扌卩

In this example, one of the two variants of the Phonetic
has been found to be PPU and thus has been identified as
such (see the variant 卞 , p. 43 above, and Wieger
Phonetic Series #78). In instances where more than one
variant of a Phonetic is identified as being PPU, the
different variants will be numbered consecutively, as
#-1, #-2, etc. (Examples of hypothetical variants would
be Phonetics #860-1, #860-2, etc.)

As mentioned above (see p. 43), there are cases
in which a particular variant of a Phonetic is contained
in only one character in a Series. In such a case, a
decision is made regarding the inclusion or exclusion
of the single character as part of the Phonetic Series
proper. An example is Final Perfect Phonetic #11, which
is identified in Chapter III of the study as follows (see
p. 86):

(7) **#**   **P**   **Pr**   **S**   **C**
11   丁   dīng   ing   W.S. #11, excl. R;

                                      excl. 成 (GV)

Here "W.S. #11, excl. R; excl. 成 (GV)" refers to all
the characters in Wieger Phonetic Series #11, excluding
those characters listed under the note "It is radical
in," __and__ excluding the character 成 , which contains a
graphic variant (GV) of the Phonetic.

Regarding the notation system used for character specification discussed above, the reader should note that when the term "W.S. #__" appears alone in column C, this author has made no changes in the corresponding Wieger Phonetic Series (see example (1), p. 46). On the other hand, when the characters specified by this author in column C differ in any way from all the characters listed in a given Wieger Phonetic Series, one of the following types of notation will be used:

(1) The 'P' convention. (See examples (4), p. 48 and (6), p. 51.)

(2) A term used as "W.S. #__, excl. __," where one or more characters are excluded by this author from a given Wieger Phonetic Series. (See examples (2), p. 47; (5), p. 50; and (7), p. 51.)

(3) Terms such as "The last ____ characters in W.S. #____"; or any other term that refers to a partial listing of characters in a Wieger Phonetic Series. (See, for example, Totally Perfect Phonetics #118a, #336a, pp. 55, 60, respectively; and Tone Perfect Phonetic #332, p. 103.)

A COMPILATION OF POTENTIALLY PEDAGOGICALLY
USEFUL PHONETICS

Totally Perfect Phonetics

#	P	Pr	S	C
2	几	jī	jī	W.S. #2, excl. R,A[1]
13	丈	zhàng	zhàng	W.S. #13.
16	千	qiān	qiān	W.S. #16, excl. R
20	凡	xùn	xùn	W.S. #20, excl. R
27a	約	yào	yào	P, 芍
33a	字	zì	zì	P, 朿
35a	汒	máng	máng	P, 芒

[1]The first character entry in Wieger Phonetic Series #2 is 几 (jī).

#	P	Pr	S	C
35b	芒	máng	máng	P, 釯, 矿, 忙
53a	快	kuài	kuài	P, 筷
58a	盆	pén	pén	P, 湓, 葐
62	凶	xiōng	xiōng	W.S. #62, excl. R; excl. 胷 (D)
68a	衰	gǔn	gǔn	P, 滚
72	叕	mú	mú	W.S. #72.
78	卞	biàn	biàn	P, 汴, 忭, 抃
81	升	shēng	shēng	W.S. #81.
86	弔	zǐ	zǐ	W.S. #86, excl. U[1]
88a	関	mǐn	mǐn	P, 忞

[1]The pronunciation of the character 沸 in Wieger Phonetic Series #86 is missing the tone mark. The pronunciation intended by Wieger is zi, and is found in the "Lexicon by Order of Radicals" (Wieger, 1927, p. 730).

#	P	Pr	S	C
89c	御	yù	yù	P, 示
90a	忽	hū	hū	P, 忄,护,颿
94a	沈	chén	chén	P, 雩
95	尤	yóu	yóu	W.S. #95, excl. R, M[1]
100a	毚	hún	hún	P, 忄
104a	沾	zhān	zhān	P, 忌,雩
115a	注	zhù	zhù	P, 雩
118a	渠	qú	qú	The last five characters in W.S. #118.
120a	附	fù	fù	P, 节

[1]The pronunciation for the character 尤 in Wieger Phonetic Series #95 is a misprint. The pronunciation intended by Wieger is yóu, and is found in the "Lexicon by Order of Radicals" (Wieger, 1927, p. 695).

#	P	Pr	S	C
130a	何	hé	hé	P, 芦
130b	阿	ē	ē	P, 妟,屄,叩
131	勾	gōu	gōu	P, 釦,扣
131a	呴	xù	xù	P, 灬
132a	姑	gū	gū	P, 芦
133b	孤	gū	gū	P, 芦,笁
135a	領	lǐng	lǐng	P, 岜
140a	泥	ní	ní	P, 坒,芦
145a	抱	bào	bào	P, 芦
151a	泙	píng	píng	P, 芦
152	布	bù	bù	W.S. #152.

#	P	Pr	S	C
160	四	sì	sì	W.S. #160[1]
161	代	dài	dài	W.S. #161[2]
164a	甸	diàn	diàn	P, 虫卩
172	右	yòu	yòu	W.S. #172, excl. R
175a	越	yuè	yuè	P, 柯
183a	效	xiào	xiào	P, 伊
186a	致	zhì	zhì	P, 紀
201	劦	xié	xié	P, 忄卩,悤,扌卩,忄卩,月卩, 月
220c	洛	lào	lào	P, 芦

[1] The tone mark for the pronunciation of the character 柶 in Wieger Phonetic Series #160 is unclear. The pronunciation intended by Wieger appears to be sì, which is found in the "Lexicon by Order of Radicals" (Wieger, 1927, p. 722).

[2] The pronunciation for the character 袋 in Wieger Phonetic Series #161 is a misprint. The pronunciation intended by Wieger is dài, and is found in the "Lexicon by Order of Radicals" (Wieger, 1927, p. 778).

#	P	Pr	S	C
220d	略	liào	liào	P, 孚
229a	迷	mí	mí	The last four characters in W.S. #229.
242a	觜	zuǐ	zuǐ	P, 口卩
243a	刺	cì	cì	P, 虫卩, 芦
254a	脣	chún	chún	P, 氵卩
257a	匧	qiè	qiè	P, 忄卩, 笮
263a	救	jiù	jiù	P, 忞
271a	匍	pú	pú	P, 芦
279	臣	yí	yí	W.S. #279.
281	邑	yì	yì	W.S. #281, excl. R
284a	欲	yù	yù	P, 忞

#	P	Pr	S	C
302a	娑	suō	suō	P, 艹
303a	速	sù	sù	P, 虫
312a	流	liú	liú	P, 釜
312b	疏	shū	shū	P, 艹
319a	涂	tú	tú	P, 坣
319b	除	chú	chú	P, 沪, 艹
325	亟	jí	jí	W.S. #325.
327a	欺	qī	qī	P, 伊
327b	綦	qí	qí	P, 艹
329	啟	qǐ	qǐ	W.S. #329, excl. R[1]
333a	賤	jiàn	jiàn	P, 沪

[1]"R" here refers to the note in Wieger which reads "It is radical contracted in."

#	P	Pr	S	C
336a	就	jiù	jiù	The last four characters in W.S. #336.
337a	倩	qiàn	qiàn	P, 芦
341a	窸	zhuō	zhuō	P, 呂
369	卦	guà	guà	W.S. #369.
377a	彬	bīn	bīn	P, 雺
381a	閏	yùn	yùn	P, 沪 [1]
392	受	shòu	shòu	W.S. #392.
427a	遐	xiá	xiá	P, 芦
437b	董	dǒng	dǒng	P, 忄P
443a	歇	xiē	xiē	P, 虴

[1]The pronunciation of the character 閏 given in Wieger Phonetic Series #381 is missing the tone mark. The pronunciation intended by Wieger is yùn, and is found in the "Lexicon by Order of Radicals" (Wieger, 1927, p. 798).

#	P	Pr	S	C
446a	箴	zhēn	zhēn	P, 鈂
461a	錄	lù	lù	P, 筽
462	冒	mào	mào	W.S. #462, excl. M; excl. 曼 (GV)
465	眇	miǎo	miǎo	W.S. #465.[1]
469	㘝	nǎo	nǎo	W.S. #469.[2]
487a	衛	wèi	wèi	P, 是, 忍
503a	耦	ǒu	ǒu	P, 芦
510	烝	zhēng	zhēng	W.S. #510, excl. the three characters listed under the comment, "Note"

[1]The tone mark for the pronunciation of the character 緲 in Wieger Phonetic Series #465 is unclear. The pronunciation intended by Wieger appears to be miǎo, which is found in the "Lexicon by Order of Radicals" (Wieger, 1927, p. 759).

[2]The three characters listed under the note, "It is phon. contracted in" are included here.

#	P	Pr	S	C
511a	滕	téng	téng	P, 竹
517	殼	qiào	qiào	P, 忿
518	桀	jié	jié	W.S. #518.
527	冢	zhǒng	zhǒng	W.S. #527.
528a	博	bó	bó	P, 竹
530a	塞	sāi	sāi	P, 伊, 竹
544a	槀	gǎo	gǎo	P, 芦
566	貨	suǒ	suǒ	W.S. #566.
580a	縕	yùn	yùn	P, 芦
591a	漸	jiàn	jiàn	P, 肙, 鬼
619a	藝	yì	yì	P, 叩
620a	翼	yì	yì	P, 沪

#	P	Pr	S	C
620b	冀	jì	jì	P, 祁P, 忰, 騉P
628a	離	lí	lí	P, 罜, 笒
632	鹵	lǔ	lǔ	W.S. #632, excl. R
633	鹿	lù	lù	W.S. #633, excl. R.
634a	摩	mó	mó	P, 芐
636a	滿	mǎn	mǎn	P, 忩
644	孰	shú	shú	W.S. #644.
649	堂	táng	táng	W.S. #649.
651	兜	dōu	dōu	W.S. #651.
677	樊	fán	fán	W.S. #677.
678a	墨	mèi	mèi	P, 紏P
709	咎	zán	zán	P, 叩

#	P	Pr	S	C
731	豦	jù	jù	W.S. #731, excl. last two characters (D)
746	稟	lǐn	lǐn	W.S. #746, excl. 稟 (GV)
754	普	pǔ	pǔ	W.S. #754.
764a	澡	zǎo	zǎo	P, 艹
767	雁	yǐng	yǐng	W.S. #767, excl. L
769	雝	yōng	yōng	P, 氵, 疒
776a	彌	mí	mí	P, 氵
804	厲	lì	lì	W.S. #804.
810	麃	biāo	biāo	W.S. #810.
832	鮮	xiǎn	xiǎn	W.S. #832.
835a	龥	yù	yù	P, 竹

#	P	Pr	S	C
839	豐	fēng	fēng	W.S. #839, excl. R
846b	彎	wān	wān	P, 沪
846c	戀	lüàn	lüàn	P, 籵 [1]

Segment Perfect Phonetics

#	P	Pr	S	C
6a	氾	fàn	fan	P, 盇, 芦
6b	軛	fǎn	fan	P, 笵
21	刃	rèn	ren	W.S. #21, excl. R; excl. 認 (D)
21a	忍	rěn	ren	P, 訒
23	口	kǒu	kou	W.S. #23.

[1]Though Wieger gives the pronunciation lüǎn for the character 戀 in Wieger Phonetic Series #846, he also gives the pronunciation lüàn for this character in the "Lexicon by Order of Radicals" (Wieger, 1927, p. 709). The latter pronunciation (lüàn) is chosen by this author, since it agrees with the pronunciation given by Fenn (1963, p. 325) and Mathews (1943, p. 608). It should be noted that although the segment lüàn is not included by DeFrancis (1963) in his description of the Chinese sound system, it is found in other sources, such as Fenn (1963), Mathews (1943) and Wang, Li, and Brotzman (1963).

#	P	Pr	S	C
26	彡	shān	shan	W.S. #26, excl. R
31	寸	cùn	cun	W.S. #31, excl. R
33	子	zǐ	zi	W.S. #33, excl. R; excl. 㜽 (D)
34	丸	wán	wan	W.S. #34, excl. "It is derived by inversion, from" 仄
49	井	jǐng	jing	W.S. #49.
56a	放	fàng	fang	P, 卩
57a	沛	pèi	pei	P, 雫
59	夫	fū fú	fu	W.S. #59, excl. R
60	父	fù	fu	W.S. #60, excl. 布 (GV)
66	壬	rén	ren	W.S. #66.

#	P	Pr	S	C
71	丙	miǎn	mian	W.S. #71, excl. 涵 (D)
71a	眄	miǎn	mian	P, 氵尸
87	王	wáng, wàng	wang	W.S. #87, excl. R, L
101	札	zhá	zha	W.S. #101.
104b	店	diàn	dian	P, 忄, 扌
105a	昭	zhāo	zhao	P, 灬
107	正	zhèng	zheng	W.S. #107, excl. R, M
111	只	zhǐ	zhi	W.S. #111.
113	丘	qiū	qiu	W.S. #113, excl. U
114	冋	jiǒng	jiong	W.S. #114.
115	主	zhǔ	zhu	W.S. #115, excl. L; excl. 霔 (D)

#	P	Pr	S	C
116	宁	zhù	zhu	W.S. #116, excl. U
119	去	qù	qu	W.S. #119, excl. R, A
120	付	fù	fu	W.S. #120, excl. 蒑 (D)
125	穴	xué	xue	W.S. #125.
131b	昫	xù	xu	P, 灬
133a	宭	wā	wa	P, 抴.叩.跙
137a	啟	mǐn	min	P, 忈
140	尼	ní nì	ni	W.S. #140, excl. last two characters (D)
142a	拔	bǎ	ba	P, 芦
150	丙	bǐng	bing	W.S. #150, excl. U; excl. 更 (GV)

#	P	Pr	S	C
168a	英	yīng	ying	The last six characters in W.S. #168.
173	永	yǒng	yong	W.S. #173, excl. R
175	戉	yuè	yue	W.S. #175, excl. 樾 (D)
176	安	ān	an	W.S. #176.
190	曲	qū	qu	W.S. #190.
194	耳	ěr	er	W.S. #194, excl. R
195	伐	fā	fa	W.S. #195, excl. U
196	伏	fú	fu	W.S. #196.
201a	脅	xié	xie	P, 炉, 忟, 欧
218	考	kǎo	kao	W.S. #218.
220a	閣	gé	ge	P, 挌

#	P	Pr	S	C
223	匡	kuāng	kuang	W.S. #223.
229	米	mǐ	mi	W.S. #229, excl. last three characters (D)
230	名	míng	ming	W.S. #230.
231	牟	móu	mou	W.S. #231.
235	邦	bāng	bang	W.S. #235.
237	守	shǒu	shou	W.S. #237.
240	朵	duǒ	duo	W.S. #240.
265	壯	zhuàng	zhuang	W.S. #265.
266	局	jú	ju	W.S. #266.
271b	浦	pú	pu	P, 芦
272	含	hán	han	W.S. #272.

#	P	Pr	S	C
276	孝	xiào	xiao	W.S. #276, excl. U
277a	稍	shǎo	shao	P, 沪
286	困	kùn	kun	W.S. #286.
288	利, 秒	lì	li	W.S. #288, excl. last two characters (D)
288a	黎	lí	li	P, 玾, 芦
291a	閭	lú	lü	P, 鉚, 枦, 芦
296	旦	niē	nie	W.S. #296.
297	我	ě	e	W.S. #297, excl. R
305	廷	tīng	ting	W.S. #305.
308	叔	cān	can	P, 食, 魚, 妥米
308a	粲	càn	can	P, 炉, 玾, 沪

#	P	Pr	S	C
315a	虞	yú	yu	P, 沪, 叩, 駅P
322	昌	chāng	chang	W.S. #322.
323a	張	zhāng	zhang	P, 沪
335	直	zhí	zhi	W.S. #335.
345	居	jū	ju	W.S. #345.
347	具	jù	ju	W.S. #347.
357	析	xī	xi	W.S. #357.
361	幸	xìng	xing	W.S. #361, excl. L
362	虎	hǔ	hu	W.S. #362.
366	岡	gāng	gang	W.S. #366.
367	肯	kěn	ken	W.S. #367.
374	來	lái	lai	W.S. #374, excl. R

#	P	Pr	S	C
380	侖	lún	lun	W.S. #380.
382	孟	mèng	meng	W.S. #382.
389	表	biǎo	biao	W.S. #389.
396	匋	táo	tao	W.S. #396.
399	忝	tiǎn	tian	W.S. #399.
402	采	cǎi	cai	W.S. #402.
405	東	dōng	dong	W.S. #405, excl. U
409a	魏	wèi	wei	P, 昏, 户, 岸
411	亞	yà	ya	W.S. #411, excl. R
412	肴	yáo	yao	W.S. #412.
413	厓	yái	yai	W.S. #413.[1]

[1]Although the segment yai is not included by DeFrancis (1963) in his description of the Chinese sound system, it is found in other sources, such as Fenn (1963, p. 613), Mathews (1943, p. 1082), Soothill (1911, p. 18), and Wang, Li, and Brotzman (1963, p. 33).

#	P	Pr	S	C
414	耶	yé	ye	W.S. #414.
422a	奢	chē	che	P, 扣
430	建	jiàn	jian	W.S. #430.
433a	愁	chǒu	chou	P, 即, 伊
436	春	chūn	chun	W.S. #436.
439	風	fēng	feng	W.S. #439.
442	复	fú	fu	W.S. #442, excl. R, U; excl. 覆 (D)
442a	復	fù	fu	P, 畐
444a	候	hòu	hou	P, 疒, 竻
448	胥	xū	xu	W.S. #448.
449	宣	xuǎn	xuan	W.S. #449.
450	胡	hú	hu	W.S. #450.

#	P	Pr	S	C
453	訂	hōng	hong	W.S. #453, excl. R
455	柔	róu	rou	W.S. #455.
459	刺	lá	la	W.S. #459, excl. Cd
463	眉	méi	mei	W.S. #463.
466	面	miàn	mian	W.S. #466, excl. R
472	奔	bēn	ben	W.S. #472.
483	燮	zōng	zong	W.S. #483, excl. R
488	畏	wèi	wei	W.S. #488.
493	要	yào	yao	W.S. #493.
496	弇	yǎn	yan	W.S. #496.
497	彥	yàn	yan	W.S. #497.
500	斿	yǒu	you	W.S. #500.

#	P	Pr	S	C
502	眼	yú	yu	W.S. #502.
507	茶	chá	cha	W.S. #507.
516	家	jiā	jia	W.S. #516.
534	息	xí	xi	W.S. #534.
536	荒	huǎng	huang	W.S. #536, excl. 㠩
542	容	róng	rong	W.S. #542.
551	留	liú	liu	W.S. #551.
552	馬	mǎ	ma	W.S. #552.
553	冥	míng	ming	W.S. #553, excl. R
554	能	nài	nai	W.S. #554, excl. R
556a	滂	páng	pang	P, 雱
558	桑	sāng	sang	W.S. #558.

#	P	Pr	S	C
559	扇	shàn	shan	W.S. #559.
565	索	suǒ	suo	W.S. #565.
571	�	tà	ta	W.S. #571.
578	退	tuì	tui	W.S. #578, excl. R
581	翁	wēng	weng	W.S. #581.
582	烏	wū	wu	W.S. #582.
587	袁	yuán	yuan	W.S. #587, excl. 睘 (GV)
588	原	yuán	yuan	W.S. #588.
593	章	zhāng	zhang	W.S. #593.
598	泰	qī	qi	W.S. #598.
599	將	jiāng, jiàng	jiang	W.S. #599.

#	P	Pr	S	C
600	牽	qiān	qian	W.S. #600.
614	旋	xuán	xuan	W.S. #614.
618	殹	yī	yi	W.S. #618, excl. 医 ; excl. 蠍 (D)
618a	翳	yī	yi	P, 虵
621	庸	yōng	yong	W.S. #621.
622a	闞	kàn	kan	P, 耴
623	康	kāng	kang	W.S. #623.
630	連	lián	lian	W.S. #630.
635	曼	mán	man	W.S. #635.
636	萬	mán	man	W.S. #636, excl. 蔴 (D)
638	敖	áo	ao	W.S. #638, excl. R

#	P	Pr	S	C
640	畢	bí	bi	W.S. #640.
655	崔	cuī	cui	W.S. #655.
667	幾	jī	ji	W.S. #667.
680	喜	xǐ	xi	W.S. #680.
681	翁	xì	xi	W.S. #681.
682	鄉	xiāng	xiang	W.S. #682, excl. U
683	象	xiàng	xiang	W.S. #683.
694	勞	láo	lao	W.S. #694.
697	買	mǎi	mai	W.S. #697.
698	莽	mǎng	mang	W.S. #698.
699	彭	péng	peng	W.S. #699.
721	愛	ài	ai	W.S. #721.

#	P	Pr	S	C
727	禁	jìn	jin	W.S. #727.
730	楚	chǔ	chu	W.S. #730.
733a	覺	jiǎo, jiào	jiao	P, 护
737	義	yì	yi	W.S. #737, excl. 羲 (GV)
739	意	yì	yi	W.S. #739.
743	雷	léi	lei	W.S. #743.
747	贏	luǒ	luo	W.S. #747, excl. R
758	遂	suí	sui	W.S. #758.
759	遺	suí	sui	W.S. #759.
773	遣	qiǎn	qian	W.S. #773.
774	盡	jìn	jin	W.S. #774, excl. R

#	P	Pr	S	C
784	蒙	méng	meng	W.S. #784.
792	藏	zǎng	zang	P, 氵沪, 艹
792a	藏	zàng	zang	P, 肥, 即
795	廛	chán	chan	W.S. #795.
797	頡	jié	jie	W.S. #797.
798	節	jié	jie	W.S. #798.
801a	攀	pān	pan	P, 祁
803	畾	léi	lei	W.S. #803, excl. the three characters listed under the note, "It is found in"; excl. 儽 , 藁 (D)
803a	纍	léi	lei	P, 伊. 艹

#	P	Pr	S	C
814	養	yǎng	yang	W.S. #814.
819	霍	huǒ	huo	W.S. #819.
820	襄	huái	huai	W.S. #820.
827	燕	yàn	yan	W.S. #827.
833	闌	lán	lan	W.S. #833.
837	爵	jiáo	jiao	W.S. #837.
843	竄	cuàn	cuan	W.S. #843.
846a	孿	lüǎn	lüan	P, 疒
853	靈	líng	ling	W.S. #853.
854	囊	náng	nang	W.S. #854.

Initial Perfect Phonetics

#	P	Pr	S	C
12	叉	chā	ch	W.S. #12.

#	P	Pr	S	C
39	爪	zhǎo	zh	W.S. #39, excl. R
43	切	qiē	q	W.S. #43, excl. 乙
121	弗	fú	f	W.S. #121.
139	母	mǔ	m	W.S. #139, excl. U
141	奴	nú	n	W.S. #141.
143a	泊	bò	b	P, 竻
146	丕	pēi	p	W.S. #146.
202	先	xiān, xiàn	x	W.S. #202.
208	血	xuě	x	W.S. #208.
228	列	liè	l	W.S. #228.
232	那	nà, nǎ	n	W.S. #232.

#	P	Pr	S	C
289	良	liáng	l	W.S. #289, excl. A
340	豖	zhuó	zh	W.S. #340.
376	兩	liǎng	l	W.S. #376.
378	夌	líng	l	W.S. #378.
424	即	jí, jì	j	W.S. #424.
464	苗	miáo	m	W.S. #464.
467	某	mǔ	m	W.S. #467.
471	保	bǎo	b	W.S. #471.
484	度	dù	d	W.S. #484.
521	晉	jìn	j	W.S. #521.
525	畜	chù	ch	W.S. #525.
603	竟	jìng	j	W.S. #603.

#	P	Pr	S	C
625	國	guǒ	g	W.S. #625, excl. last two characters (GV)
626	累	lěi, lèi	l	W.S. #626.
637	莫	mò, mù	m	W.S. #637.
695	尞	liǎo	l	W.S. #695.
696	粦	lín	l	W.S. #696.
770	耤	jí	j	W.S. #770.
782	蒦	huó	h	W.S. #782.
785	寍	níng	n	W.S. #785.
805	巤	liè	l	W.S. #805.
823	盧	lú	l	W.S. #823.

#	P	Pr	S	C
840	舊	xī	x	W.S. #840.

Final Perfect Phonetics

#	P	Pr	S	C
6	弓	hǎn	an	W.S. #6, excl. R; excl. 盈．范．範 (D)[1]
10	十	shí	ı	W.S. #10, excl. R, A[2]
11	丁	dǐng	ing	W.S. #11, excl. R; excl. 成 (GV)
14	己	jǐ	i	W.S. #14, excl. R; excl. 㔾 (D)
17	久	jiǔ	iu	W.S. #17, excl. M

[1]The first character entry in Wieger Phonetic Series #6 is 弓 (hǎn).

[2]The first character entry in Wieger Phonetic Series #10 is 十 (shí).

#	P	Pr	S	C
28a	臤	yí	i	P, 灬
32	土	tǔ	u	W.S. #32, excl. R[1]
52	中	zhōng, zhòng	ong	W.S. #52, excl. R, L
55	反	fǎn	an	W.S. #55.
56	方	fāng	ang	W.S. #56, excl. 傲 (D)
70	毛	máo	ao	W.S. #70, excl. R
76	巴	bā	a	W.S. #76, excl. L
77	比	bǐ	i	W.S. #77, excl. R, U
85	屯	tún	un	W.S. #85, excl R

[1]The pronunciation of the character 吐 in Wieger Phonetic Series #32 is missing the tone mark. The pronunciation intended by Wieger is tǔ, and is found in the "Lexicon by Order of Radicals" (Wieger, 1927, p. 681).

#	P	Pr	S	C
98	勹	yún	ün	W.S. #98, excl Cd; excl 筠 (D)
98a	均	jūn	ün	P, 竹
118	巨	jù	ü	W.S. #118, excl. last 4 characters (D)
122	號	hào	ao	P, 食
123	兄	huàng	uang	W.S. #123, excl. R[1]
128	丹, 冉	rǎn	an	W.S. #128, excl. R, U; excl. 那 (GV)
130	可	kě	e	W.S. #130, excl. R; excl. 荷, 娿, 屙, 啊 (D)
132	古	gǔ	u	W.S. #132, excl. 菇, 做 (D)

[1]The character 兄 is also pronounced xiōng (Wieger, 1927, p. 424).

#	P	Pr	S	C
147	本	běn	en	W.S. #147, excl. M
149a	波	pō	o	P, 晏, 召, 芦
158	术	shú	u	W.S. #158, excl. R
159	司	sī	그	W.S. #159.
164	田	tián	ian	W.S. #164, excl. R, U; excl. 蜎 (D)
165	它	tuō	uo	W.S. #165, excl. R
179	成	chéng	eng	W.S. #179.
181a	絜	xiè	ie	P, 沪
183	交	jiǎo	iao	W.S. #183, excl. 傲 (D)
187	州	zhōu	ou	W.S. #187.
188	朱	zhú	u	W.S. #188.

#	P	Pr	S	C
189	充	chōng	ong	W.S. #189.
203a	衍	yǎn	ian	P, 忽.蚤
217	戎	róng	ong	W.S. #217.
220b	客	kè	e	P, 頁
225	共	gòng	ong	W.S. #225.
227a	活	huó	uo	P, 門
233	百	bǎi	ai	W.S. #233, excl. R, U
244	次	cì	ㄥ	W.S. #244.
246	同	tóng	ong	W.S. #246.
247	危	wéi	ui	W.S. #247.
248	羊	yáng	iang	W.S. #248, excl. R

#	P	Pr	S	C
253	岑	chēn	en	W.S. #253.
259	見	jiàn	i.an	W.S. #259, excl. R
261	㞐	jìn	in	P, �. 汇. 叩. 馹. 釾. 紃. 伊. 疕
261a	浸	jìn	in	P, 㝳. 窔
263	求	qiú	iu	W.S. #263, excl. last character (D)
267	君	jūn	ün	W.S. #267.
269	夆	fēng	eng	W.S. #269.
273	旱	hàn	an	W.S. #273.
282a	造	zào	ao	P, 忰. 糙
285	狂	kuáng	uang	W.S. #285.
291	呂	lǚ	ü	P, 伊. 枦. 閭. 筥. 芦

#	P	Pr	S	C
299	毕	bì	i	W.S. #299.
304	弟	dì	i	W.S. #304, excl. R, U
307	豆	dòu	ou	W.S. #307, excl. R
321	肙	yuàn	üan	W.S. #321.
327	其	qí	i	W.S. #327, excl. 欺, 慕 (D)
328	奇	qí, jī	i	W.S. #328.
330	疌	jié	ie	W.S. #330.
334	知	zhī	ɿ	W.S. #334.
346	匊	jú	ü	W.S. #346.
350	卷	juàn	üan	W.S. #350.
351	囷	qún	ün	W.S. #351.

#	P	Pr	S	C
359	享	chún	un	W.S. #359.[1]
370	官	guān	uan	W.S. #370.
371	昆	kūn	un	W.S. #371.
387	朋	péng	eng	W.S. #387, excl. U
391a	賞	shǎng	ang	P, 仴
395	沓	dà	a	W.S. #395.
398	典	diǎn	ian	W.S. #398.
404	宗	zōng	ong	W.S. #404.
410	武	wǔ	u	W.S. #410.
420	查	chá	a	W.S. #420.
421	㡿	chá	a	W.S. #421.

[1]The character 享 (chún) should be distinguished from the etymologically unrelated homographs 享 (xiǎng) and 享 (guō). The reader is referred to Etymological Lessons #75 D, E, and H in Wieger (1927, pp. 192-195).

#	P	Pr	S	C
422b	諸	zhū	u	P, 柧, 苫, 伊, 沪, 蛆
423	貞	zhēng	eng	W.S. #423.
425	豈	qǐ	i	W.S. #425.
427	叚	jiǎ	ia	W.S. #427, excl. 遐 (D)
431	前	qián	ian	W.S. #431.
432	酉	jiū	iu	W.S. #432, excl. R
437	重	zhòng, chóng	ong	W.S. #437, excl. 懂, 懧 (D)
444	侯	hóu	ou	W.S. #444, excl. 瘊, 篌 (D)
458	癸	guǐ	ui	W.S. #458.
468	南	nán	an	W.S. #468, excl. A

#	P	Pr	S	C
473	扁	biǎn	ian	W.S. #473.
474	便	biàn, pián	ian	W.S. #474.
478	帝	dì	i	W.S. #478.
489	胃	wéi	ui	W.S. #489, excl. R
494	葉	yè	ie	W.S. #494.
512	乘	shèng, chéng	eng	W.S. #512.
526	追	zhuī	ui	W.S. #526.
533	奚	xī	i	W.S. #533.
549	享,郭	guō	uo	W.S. #549.
555	般	bān	an	W.S. #555.

#	P	Pr	S	C
556	旁	páng	ang	W.S. #556, excl. 雱 (D)
557	毘	pí	i	W.S. #557.
570-1	荅	dá	a	W.S. #570, excl. the two characters under the note, "Modern form"
576	蚤	zǎo	ao	W.S. #576.
579	兹	zī	ɿ	W.S. #579.
594	巢	cháo	ao	W.S. #594.
595a	察	chá	a	P, 魍 . 护
602	堇	jǐn	in	W.S. #602.
608	逢	féng	eng	W.S. #608.

#	P	Pr	S	C
622	敢	gǎn	an	W.S. #622, excl. R; excl. 瞰 (D)
624	規	guī	ui	W.S. #624.
642	票	piào	iao	W.S. #642.
653	曹	cáo	ao	W.S. #653.
656	恩 忽	cōng	ong	W.S. #656.
657	從	cóng	ong	W.S. #657.
660	焉	yān	ian	W.S. #660.
664	朝	cháo, zhāo	ao	W.S. #664, excl. R
665	敇	zhè	e	W.S. #665.
668	强	qiáng	iang	W.S. #668.
669	焦	jiāo	iao	W.S. #669.

#	P	Pr	S	C
670	喬	qiáo	iao	W.S. #670.
671	戠	zhī	ʅ	W.S. #671.
672	景	jǐng	ing	W.S. #672.
673	厥	jué, qué	üe	W.S. #673.
676a	潘	pān	an	P, 芦.笁
678	黑	hēi	ei	W.S. #678, excl. R; excl. 纆 (D)
684	閒, 間	xián, jiàn	ian	W.S. #684.
685	虛	xū	ü	W.S. #685.
689	惠	huì	ui	W.S. #689.
693	貴	guì	ui	W.S. #693, excl. R; excl. 櫃 (D)

#	P	Pr	S	C
693a	匵	kuì	ui	P, 柙
707	湯	táng	ang	W.S. #707.
708	登	dēng	eng	W.S. #708.
710	曾	zēng, céng	eng	W.S. #710, excl. R
713	尊	zūn	un	W.S. #713.
718	無	wú	u	W.S. #718.
723	轂	jī	i	W.S. #723.
725	解	jiě	ie	W.S. #725.
726	僉	qiān	ian	W.S. #726.
729	敬	jìng	ing	W.S. #729.
731a	遽	jù	ü	P, 筥, 莒

#	P	Pr	S	C
732	賁	fèn	en	W.S. #732.
740	感	gǎn	an	W.S. #740.
761	達	dá	a	W.S. #761.
762	亶	tán	an	W.S. #762.
763	當	dǎng, dàng	ang	W.S. #763.
764	枭	zǎo	ao	W.S. #764, excl. 藻 (D)
768	與	yǔ	ü	W.S. #768, excl. L
790	臺	tái	ai	W.S. #790.
796	徵	zhēng	eng	W.S. #796.
801	樊	fán	an	W.S. #801, excl. 攀 (D)

#	P	Pr	S	C
825	頻	pín	in	W.S. #825.
838	瞿	qú	ü	W.S. #838.
856	屬	shú	u	W.S. #856.
857	黨	dǎng	ang	W.S. #857.
858	嚴	yán	ian	W.S. #858.

Tone Perfect Phonetics

#	P	Pr	S	C
3	丂	qiǎo	ˇ	W.S. #3, excl. R[1]
36	兀	wù	ˋ	W.S. #36.
44a	次	xiàn	ˋ	P, 善, 皿
46	止	zhǐ	ˇ	W.S. #46, excl. R
89a	許	xǔ	ˇ	P, 氵P

[1]The first character entry in Wieger Phonetic Series #3 is 丂 (qiǎo).

#	P	Pr	S	C
89b	卸	xiè	、	P, 㔾
132b	故	gù	、	P, 㔾
134a	泣	qì	、	P, 雫
144	半	bàn	、	W.S. #144, excl. "Cd"[1]
148	必	bì	、	W.S. #148.[2]
157	世	shì	、	W.S. #157, excl. A
167	未	wèi	、	W.S. #167, excl. R
243	朿	cì	、	W.S. #243, excl. R; excl. 蝲, 莉 (D)

[1]Although the note written in Wieger states "It is contracted in," Wieger clearly means "Abbreviation in" here (see Wieger, 1927, p. 430).

[2]Though not given in Wieger, this author chooses the pronunciation bì for the character 必 , since it is a well-known pronunciation and is found in numerous sources, such as DeFrancis (1970, p. 11), Fenn (1963, p. 400), Mathews (1943, p. 706), and Anderson (1972, p. 120).

#	P	Pr	S	C
268	否	fǒu	∨	W.S. #268, excl. 音 (GV)[1]
290	弄	lòng, nòng	╲	W.S. #290.
302	沙	shā	—	W.S. #302, excl. last character (D)
332a	堅	jiān	—	The six characters listed under the note, "Sub-Series" in W.S. #332.
400	定	dìng	╲	W.S. #400.
440	封	fēng	—	W.S. #440.
441a	匐	fù	╲	P, 苩

[1]The pronunciation fǎo given for the character 否 in Wieger Phonetic Series #268 appears to be obsolete. The current pronunciation (chosen by this author) is fǒu, and can be found in DeFrancis (1970, p. 74), Fenn (1963, p. 139), and Mathews (1943, p. 279).

#	P	Pr	S	C
539	益	yì	ヽ	W.S. #539, excl. R, A
541	辱	rù	ヽ	W.S. #541.
560	射	shè	ヽ	W.S. #560.
563	衰	shuāi, suō	—	W.S. #563.
564	朔	shuò	ヽ	W.S. #564.
596	既	jì	ヽ	W.S. #596.
619	執	yì	ヽ	W.S. #619, excl. 藝 (D)
620	異	yì	ヽ	P, 匜, 庐, 習, 背, 戠
648	帶	dài	ヽ	W.S. #648.
674	貳	èr	ヽ	W.S. #674.

#	P	Pr	S	C
704	斯	sī	—	W.S. #704.
712	毳	cuì	ˋ	W.S. #712.
724	畺	jiāng	—	W.S. #724.
736	會	huì	ˋ	W.S. #736, excl. R
808	蔑	miè	ˋ	W.S. #808.
813	憲	tì	ˋ	W.S. #813.
815	樂	yào, lào	ˋ	W.S. #815.
835	龠	yào	ˋ	W.S. #835, excl. 籲 (D)
842	聶	niè	ˋ	W.S. #842.
851	瞿	guò	ˋ	W.S. #851.

Initial-Tone Perfect Phonetics

#	P	Pr	S	C
24a	貢	gòng	g`	P, 祁
292	寽	lüè	l`	W.S. #292.
298	貝	bèi	b`	W.S. #298.
301a	勃	bò	b`	P, 沪,恖
375	戾	lì	l`	W.S. #375.
384	明	míng	m´	W.S. #384.
461	彔	lù	l`	W.S. #461, excl. R; excl. 籙 (D)
520	蚩	chī	ch⁻	W.S. #520.
561	師	shī	sh⁻	W.S. #561.
574	宰	zǎi	zˇ	W.S. #574.
647	欶	sù, sòu	s`	W.S. #647.

#	P	Pr	S	C
786	拜	biàn	b`	W.S. #786.
806	魯	lǔ	1ˇ	W.S. #806.

Final-Tone Perfect Phonetics

#	P	Pr	S	C
8	八	bā	ā	W.S. #8, excl. R
30	才	cái	ái	W.S. #30, excl. R; excl. 在,存 (GV)
57	市	fèi	èi	W.S. #57, excl. R, U; excl. 需 (D)
83	丹	dān	ān	W.S. #83, excl. R[1]
199	后	hòu	òu	W.S. #199.[2]

[1]The correct form for the third character in Wieger Phonetic Series #83 is 方甬 (see "Lexicon by Order of Radicals" in Wieger, 1927, p. 717).

[2]The pronunciation of the character 訽 in Wieger Phonetic Series #199 is missing the tone mark. The pronunciation intended by Wieger is gòu, and is found in the "Lexicon by Order of Radicals" (Wieger, 1927, p. 781).

#	P	Pr	S	C
210	灰	huī	uī	W.S. #210.
212	夷	yí	í	W.S. #212.
214	亦	yì	ì	W.S. #214, excl. 夜 (GV)
234	辰	pài	ài	W.S. #234, excl. U
236	式	shì	ì̃	W.S. #236.
258	戒	jiè	iè	W.S. #258.
274	亨	hēng	ēng	W.S. #274.
397	旱	dé	é	W.S. #397.
437a	動	dòng	òng	P, 帅P
482	奏	zòu	òu	W.S. #482.
504	禹	yǔ	ǔ	W.S. #504.

#	P	Pr	S	C
515	氣	qì	ì	W.S. #515.
570-2	答	dá	á	The last two characters in W.S. #570 (under the note, "Modern form").
612	罨	qiān	iān	W.S. #612.
744	豊	lǐ	ǐ	W.S. #744.
760	歲	suì	uì	W.S. #760.
809	暴	bào	ào	W.S. #809.

CHAPTER IV

CONCLUSIONS

It has been the aim of the current study to
identify and to characterize those Phonetics of the
Chinese script which may hold some value in aiding the
student who is learning Chinese characters. By selecting
Phonetics that consistently indicate some feature of
pronunciation in all characters containing it as a common
element, a compilation of Potentially Pedagogically Use-
ful Phonetics has resulted. This compilation represents
an attempt to go beyond the work of Astor (1970) and to
identify Phonetics that carry a clue to the pronunciation
of other characters, even if this clue is not a "total"
one (i.e., to identify Phonetics in addition to those
known as Totally Perfect).

As compared with Astor (1970), a fairly large
number of PPU Phonetics have been identified in the
current study. A total of 579 Phonetics are given here
in Chapter III, as versus 113 in Astor. When broken
down into the seven PPU categories, the Phonetics
identified here are distributed as follows: (1) Totally
Perfect Phonetics: 124; Segment Perfect Phonetics:
192; (3) Initial Perfect Phonetics: 35; (4) Final

Perfect Phonetics: 153; (5) Tone Perfect Phonetics: 40;
(6) Initial-Tone Perfect Phonetics: 13; (7) Final-Tone
Perfect Phonetics: 22. It should be noted that the 124
Totally Perfect Phonetics identified in the current
study are in addition to the 63 identified by Astor.

Although a relatively large number of PPU Phonetics
are presented in Chapter III, certain areas regarding the
potential usefulness of Phonetics have not been explored
in the current study. For example, for many Final Per-
fect Phonetics, the characters containing a given Phonetic
are pronounced with initials that appear to exhibit some
sort of close phonological relationship. An example is
Final Perfect Phonetic #187 (see p. 89). Here, all
characters containing the Phonetic are not only pro-
nounced with the final <u>ou</u>, but are also pronounced with
a retroflex initial, namely <u>zh</u> or <u>ch</u> (see Wieger Phonetic
Series #187, Figure 3). This fact tells the student that
all characters containing the Phonetic 州 (#187) are
pronounced with the segment <u>zhou</u> or <u>chou</u>, thus providing
him with additional information as to the pronunciation
of the characters in question. This kind of characteri-
zation of the similarity in pronunciation of characters
containing a common Phonetic has an obvious bearing on
the potential usefulness of Phonetics for the learning
of Chinese, and represents a valuable area for further
research. Some possible suggestions for such research

would be the examination of initial similarity in Final, Final-Tone, or Tone Perfect Phonetics; as well as the examination of final similarity in Initial, Initial-Tone, or Tone Perfect Phonetics. In addition, Phonetics not presented in the current study could also be analyzed for the existence of such phenomena.

Perhaps one of the most important areas for further research would be the identification and characterization of PPU Phonetics among the simplified characters used in the People's Republic of China (PRC). Because of the growing importance of the PRC in international affairs, such a study could have wide implications, not only for the teaching of Chinese abroad, but for the continued promotion of literacy in the PRC itself.

As has already been stated, some 579 Phonetics have been identified in the current study as being Potentially Pedagogically Useful. These Phonetics have been designed and presented for possible use by teachers and students of Chinese. What remains now is for them to be tested in actual classroom situations.

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