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Indo-European Vocabulary in Old Chinese  
*A New Thesis on the Emergence of Chinese Language  
and Civilization in the Late Neolithic Age*

by  
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Indo-European Vocabulary in Old Chinese. A New Thesis on the Emergence of Chinese Language and Civilization in the Late Neolithic Age\*

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In 1786, just over two hundred years ago, comparative historical linguistics was born, when Sir William Jones (1746-1794) discovered the relationship between Old-Indian Sanskrit, Greek, and Latin. Since then, the emerging Indo-European philology has thrown much light on the early history of mankind in Eurasia.

During the past two hundred years, many suggestions were also made in regard to relationships of Indo-European to other languages such as Semitic, Altaic, Austronesian, Korean etc., but Indo-Europeanists commonly rejected such attempts for want of convincing evidence. As to Chinese, Joseph Edkins was the first to advance the thesis of its proximity to Indo-European. In his work *China's Place in Philology. An Attempt to show that the Language of Europe and Asia have a Common Origin* (1871) he presented a number of Chinese words similar to those of Indo-European.

In his time, Edkins' thesis seemed bold and extravagant. But today, more than a hundred years later, we are in a much better position to carry out a comprehensive and well-founded comparative study. Since the end of the nineteenth century, many Sinologists have been engaged in reconstruction of the mediaeval and archaic readings of Chinese characters. Among them, Karlgren (1889-1978) was the most successful, and in 1940 he published a comprehensive phonological and etymological dictionary entitled *Grammata Serica*. In the meantime, the Indo-Europeanists Alois Walde (1869-1924) and Julius Pokorny (1887-1970) were devoting themselves to the compilation of a useful etymological dictionary. The result was the *Indogermanisches Etymologisches Wörterbuch* by Pokorny (1959) which provides a solid basis for our lexical comparisons.

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\* This study is a much expanded version of the paper I read at the XXXII International Congress for Asian and North African Studies on August 28, 1986 in Hamburg (Germany).

Soon thereafter, some Sinologists made use of the two dictionaries by Karlgren and Pokorny to compare Chinese and Indo-European words. In 1967, an unaffiliated German scholar, Jan Ulenbrook, published an article "Einige Übereinstimmungen zwischen dem Chinesischen und dem Indogermanischen", in which he claimed that 57 words are related. Shortly afterwards, Tor Ulving of the University of Göteborg, Sweden, wrote a review of this article framing the title as a question: "Indo-European elements in Chinese?" While working on his thesis on word families in Chinese, Ulving compiled for his own use two dictionaries: "Archaic Chinese - English" and "English - Archaic Chinese", and discovered thereby 238 Chinese words similar to Indo-European roots. In spite of this considerable number of word equivalents, however, Mr. Ulving became discouraged and, as he told me in his letter of April, 1986, has given up his researches in this field.

The skepticism, common among Indo-Europeanists in regard to comparative studies with other languages, is largely based on the dogmatic opinion that only morphology is relevant but not vocabulary. Since the typology of Chinese seems to preclude a cognate relation to Indo-European, they are inclined to discard any lexical correspondences as merely accidental or onomatopoeic. Besides, prehistorical contacts and mixtures between these languages seem not conceivable, as the Indo-Europeans are supposed to have originated in Northern Europe or at best in the Central Asian steppe, thousands of miles away from East Asia. Hence, any research into a relationship between Old Chinese and Indo-European languages would be but futile from the outset.

Yet there are also opposing views among Indo-Europeanists. Investigations into Germanic languages and the oldest Indo-European language, Hittite, led some of them to a critical revision of the prevailing conception about a Proto-Indo-European. Hermann Hirt (1934) for instance states: "Inflexion of Indo-European languages is due to a relatively late development, and its correct comprehension can be achieved only by proceeding from the time of

non-inflexion." And Carl Karstien (1936) holds the opinion that "Chinese corresponds most ideally to the hypothetical prototype of Indo-European."

Regarding vocabulary, there are striking similarities in the monosyllabic structure of the basic words. In modern German and English, all the words of everyday speech are monosyllabic and their stereotypical structure is:

initial consonant(s) + vowel(s) + final consonant(s).

The same word structure is valid for Chinese as well. It is fundamentally different from the disyllabic structure of Altaic words and from the triconsonantal-disyllabic structure of Semitic words. Characteristic of the monosyllabic word structure is, besides, the complexity of the syllable nucleus, which consists of different vowels and vowel clusters in contrast to the monophthongal vocalism of polysyllabic words.

Another objection raised to comparisons between Chinese and Indo-European is the existence of tonal accents in Chinese. Since most modern Indo-European languages have only expiratory accents, Chinese is considered to be a highly exotic language. Yet, even in Chinese, the use of tonal accents as a means of lexical differentiation is a result of comparatively recent development in the long history of Chinese language, the earliest monuments of which date back to 1300 B.C. (cf. Chang 1970, p.21). Unknown to Old Chinese, the existence of tonal accents was for the first time mentioned in the 5th century by Shen Yüeh 沈約 (441-513).

In Middle Chinese (Mch.) there were four tone categories:

- A P'ing-sheng 平 , a level tone (which developed into Mandarin tone 1 or 2).
- B Shang-sheng 上 , a rising tone (Mandarin tone 3).
- C Ch'ü-sheng 去 , a vanishing, i.e. falling tone (Mandarin tone 4).
- D Ju-sheng 入 , an entering tone with a staccato effect, the word being abruptly stopped by a final consonant -p, -t, -k. (In Early Mandarin the words of this tone lost their final consonant and were distributed among the tones 2, 3 and 4, respectively according to the phonation of initials).

In Middle Chinese, words of the entering tone were the only group which still preserved the final stops and therefore a close syllabic structure. So they are most appropriate for convincing comparisons with monosyllabic Indo-European word stems.

The final stops -p, -t, -k of the entering tone are nowadays still extant in daily speech of several dialects in South China as well as in Chinese borrowings in Japanese, Vietnamese and Korean. As a speaker of a Taiwan dialect of Minnan origin, I could immediately identify some Indo-European stems with corresponding Chinese words. Besides, the command of Japanese and German was also a great help for this study.

In the following lists I have chosen a number of Indo-European stems which are phonetically and semantically equivalent to Chinese words. Correspondences in initial and final consonants refer to the points of articulation, thus we have equations:

- IE labials = Old Chinese labials, IE dentals = dentals,
- IE l, r = dentals (cf. p. 31);  $\emptyset$ , i (final and medial)
- IE velars = velars and laryngeals,  
and occasionally (the so-called "satem"-forms)
- IE velars = dental sibilants and affricates.

Regarding the manner of articulation, there are no regular correspondences between Indo-European and Chinese consonants like Grimm's law which is valid among Indo-European dialects to a certain extent. But this is not astonishing, since in Old Chinese the alternation of initials in voicing was a conventional means of creating new words from one basic form.

The rules of vocalic correpondences among Indo-European dialects are quite complex. Vowels permanently change their qualities from one language to another, and from time to time <sup>within one language</sup>, also, as is well known from the history of English pronunciations. Generally, the vocalism of Old Greek is taken as the standard for Proto-Indo-European. Old Chinese vowels corresponds nearly (cf. p. 30), but the details about the reconstruction of Middle and Old Chinese vocalism will be treated later (pp. 26-30). For the moment, it is necessary to notice in advance that the stem of ablauting Germanic verbs is the form of preterite or noun, rather than that of infinitive as assumed hitherto. Therefore, in some cases I must slightly modify the basic vowel of verbal stems given in Pokorny, in order to get better basis for comparison. As Old Chinese verbs were non-flexional, they might probably have preserved the original vowel the best.

Indo-European stems corresponding to Chinese words of entering tone:

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
100 bhug	belly, nhd. Bauch ags.būc, ahd.būh, mhd.būch, schwed.buk, dän.bug	puk 腹	pjuk 1 III*	fu: <sup>3</sup>	fu: <sup>4</sup> fu <sup>4</sup>
113 bhōg	to bask in the sun gr. φώγω, ahd.bahhan, ags.bacan, bōc, aisl.baka	bok 曝	buk 1 I	phu: <sup>3</sup>	phu: <sup>4</sup> pu <sup>4</sup>
117 bheidh	to insist, to bid, to bide, gr. πείθω got.bidjan, ahd.mhd. bitten, ags.biddan, as.biddjan, engl.to bid	pait 必	pait 17 IV	pi: <sup>3</sup>	pi: <sup>4</sup> bi <sup>4</sup>
359 glābh	to clasp (nhd.klammern) ags.clyppan, afries. kleppa, engl.clasp	klap 夾	keap 39 II	kea <sup>3</sup>	tɕja: <sup>1</sup> jia <sup>1</sup>
371 gnet	to knead, nhd.kneten, ahd.knetan, ags.cnedan	gnet 捏	niet 23 IV	nie <sup>4</sup>	nie <sup>4</sup> nie <sup>4</sup>
382 ġep	cheek (nhd. Kiefer) ags.ceafe, mengl.chavel	kep 頰	kiep 39 IV	kie <sup>3</sup>	tɕja: <sup>2</sup> jia <sup>2</sup>
393 god 586 kot	cot, hole an.kot, ags.cot	khot 窟	khot 18 RI	khu: <sup>3</sup>	khu: <sup>1</sup> ku <sup>1</sup>
400 glag	milk (ch.curd) gr. γάλακτος, lat.lac	glāk 酪	lāk 31 I	lau <sup>4</sup>	lao <sup>4</sup> lao <sup>4</sup>
408 ghobh	to give, donation got. giban, ahd. geban, got. giba, ahd. geba, mhd. gābe, nhd.gabe	kop 給	kjup 38 III	ki: <sup>3</sup>	tɕi: <sup>3</sup> kei <sup>3</sup> gei <sup>3</sup>
554 kalb	to help; to cooperate got. hilpa, as. ags. helpan ahd. helfan, engl. help	ha:p 協	hiep 39 IV	xie <sup>2</sup>	ɕie <sup>2</sup> xie <sup>2</sup>
610 kob	hap, happen, suitable ags. gehoeop "suitable" schwed. hapa sig "it happens"	hop 合	hâp 39 I	xo: <sup>2</sup>	xɣ: <sup>2</sup> he <sup>2</sup>
616 kost	bone, rib skr. kôst, lat. costa, frz. côte "rib" abg. kost, poln. kość "bone"	ko t 骨	kot 18 RI	ku: <sup>3</sup>	ku: <sup>3</sup> gu <sup>3</sup>

\* Arabic and Roman numbers indicate the Rhyme group and Grade respectively (cf. Rhyme Tables of Early Middle Chinese in Appendix, p. 49)  
A list of abbreviations may be found at the end of the paper (pp.40)



Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
645 k <sup>w</sup> ad	what? ai.kad, lat.guid, ahd.hwaz, an.hvat, as.hwat, ags.hwæt	h <sup>h</sup> uat  曷	h <sup>h</sup> at  24 RI	xo: <sup>2</sup>	xy: <sup>2</sup>  he <sup>2</sup>
684 lend	little, miserable as.lūt, luttill, ahd.luzil, mhd.lützel, ags. lytel	leut  劣	luet  24RIII	lue <sup>4</sup>	lje: <sup>4</sup>  lie <sup>4</sup>
690 lobh	leaf got.lauf, ahd.loub, ags.léaf, nhd.Laub	lop  葉	iap  40 IV	ie <sup>4</sup>	ie <sup>4</sup>  ye <sup>4</sup>
694 mad	mast, to fatten ahd.mhd.mnd.mast, ags.moest	mat  秣	moat  24RI	muo <sup>4</sup>	muo <sup>4</sup>  mo <sup>4</sup>
735 mort	to die, death ai.mrtā-, lat.mors, ahd.mord, mhd.mort, ags.aisl.mord	mot  歿	mot  18 RI	mu: <sup>4</sup>	muo <sup>4</sup>  mo <sup>4</sup>
762 nak	to drown. (ertrinken) ai.nasāti, av.nas-, lat. nex, "accidental death"	nak  溺	niek  35 IV	ni: <sup>4</sup>	ni: <sup>4</sup>  ni <sup>4</sup>
843 pauk	few (dünn, wenig) lat.paucus, ahd.fōh, fao, fō, as.fā, ags.fēa	bāk  薄	bāk  31 I	pau <sup>2</sup> po: <sup>2</sup>	pao <sup>2</sup> po: <sup>2</sup> bao <sup>2</sup>
837 plod	float, nhd. Floß ahd.mhd.vloz, ags.flēot	blot  筏	buat  22RIII	fa: <sup>2</sup>	fa: <sup>2</sup> fa <sup>2</sup>
856 regt	right, nhd. richtig, ahd.mhd.as.rēht, ags.riht	zeək  寔	zjək  42 III	ʃi: <sup>2</sup>	ʃi: <sup>2</sup>  shi <sup>2</sup>
859 rist	to tear, to slit ahd.rīzan, mhd.rīzen, nhd.reißen, schleißēn	liət  裂	liet  21 IV	lie <sup>4</sup>	lie <sup>4</sup>  lie <sup>4</sup>
926 slid					
877 sāg	to seek, nhd.suchen got.sōkjan, aisl.sōkja, ahd.suohh n, ags.sōecan, as.sōkian, mnd.sōken	sāk  索	sāk  31 I	sau <sup>3</sup>	suo <sup>3</sup>  suo <sup>3</sup>

Pokorny page	stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
880	sap	sap, nhd.Saft lat.sapa, aisl.safi, ahd.saf, sapf, ags.saep, mhd.saf,saft	tsop 汁	tɕjup	tʃi: <sup>3</sup>	tɕi: <sup>1</sup>
913	sup	soup, nhd.Suppe, ai.supa- ahd.sūf, souf, sōpha, soffa	tsop	38 III		zhi <sup>1</sup>
921	skid	to shit, nhd. schießen ahd.scīzan, ags.scītan, aisl.skīta	siət 池	siet 21 IV	sie <sup>3</sup>	ɣie <sup>4</sup> xie <sup>4</sup>
922	skip	rudder, ship gr. ἄγκυρα, lat.scīpiō, got.aisl.ags.skip, ahd.scif	tsiap 楫	tsiap 40 IV	tsje <sup>3</sup>	tɕi: <sup>2</sup> ji <sup>2</sup>
935	skrek	inclined, nhd.schräg mhd.schraege, nd.schrēge	tseək 側	tseək 42 II	tʃaj <sup>3</sup>	tshɣ: <sup>4</sup> ce <sup>4</sup>
931	skop	to scoop, nhd.schöpfen ahd.scaf, scephfen	kop 汲	kjup 38 III	ki: <sup>3</sup>	tɕi: <sup>2</sup> ji <sup>2</sup>
963	sleubh	to slip into got.sliupan, ahd.sliofan ags.slūpan; nhd.schlūpfen	zleup 襲	ziup 38 IV	si: <sup>2</sup>	ɕi: <sup>2</sup> xi <sup>2</sup>
1013	tog	roof, house, nhd.Dach gr. βῆθος, τέγος, ahd.dah, aisl.þak, ags.ðoec, engl.thatch	dāk 宅	ɕeak 33 II	tʃai <sup>2</sup>	tɕai <sup>2</sup> zhai <sup>2</sup>
1017	stig	to go up, nhd.steigen, got.steigan, aisl.stīga, ahd.ags.stīgan	tiək 陟	ɕjək 42 III	tʃi: <sup>3</sup>	tɕi: <sup>4</sup> zhi <sup>4</sup>
1024	sturd	to rush at, nhd.stürzen ahd.sturzen, mhd.stürzen, sturzen, mnd.mnl.storten, engl.start	dut 突	dot 18 RI	tu: <sup>2</sup>	thu: <sup>1</sup> tu <sup>1</sup>
1032	stouk	arrowhead, nhd.Stück, bret.stuc'h, anord.stykkī, as.stukki, ahd.stucki, mhd.stücke	tsok 鏃	tsuk 1 I	tsu: <sup>2</sup>	tsu: <sup>2</sup> zu <sup>2</sup>
1058	tek	to take, nhd.bekommen, aisl.þiggia, dän.tigge, ags.dicgan, as.tiggian	tək 得	tək 42 I	tai <sup>3</sup>	tɣ: <sup>2</sup>
183	dæg	got.tēkan, engl.take				de <sup>2</sup>



- c. Mch. level tone < Ach. -∅ = IE -∅  
 < Ach. -∅, -i = IE -r, -l  
 (cf. pp. 24) < Ach. -u = IE velars  
 (cf. pp. 24) < Ach. -g = IE velars  
 < Ach. -u = IE labials (occasionally)

In the following list a number of Indo-European stems are given which correspond to Chinese words of rising tone:

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
107 bhog	book, nhd. Buch; to book ahd. buoh, as. afries. ags. an. bōk	bo:g 簿	bou <sup>上</sup> 12 RI	pu: <sup>4*</sup>	pu: <sup>4</sup> bu <sup>4</sup>
141 bhrg	castle, nhd. Burg gr. Πύργος, lat. burgus "tower", got. baurgs "city, tower" engl. borough, burrow, local names -bury	po:g 堡	pau <sup>上</sup> 25 I	pau <sup>3</sup>	pao <sup>3</sup> bao <sup>3</sup>
188 deik	to point at/to, nhd. zeigen, gr. δείκνύω lat. dīcō, ahd. zeigōn, mhd. zeigen, ags. teon	təig 指	təjəi <sup>上</sup> 6 III	tʃi: <sup>3</sup>	tʃi: <sup>3</sup> zhi <sup>3</sup>
188 doik	toe, nhd. Zehe lat. digitus "finger, toe", ahd. zēha, ags. tāhe, tā	təig 趾	təjəi <sup>上</sup> 8 III	tʃi: <sup>3</sup>	tʃi: <sup>3</sup> zhi <sup>3</sup>
213 drk	glance (nhd. Blick) ai. drís- "glance", gr. δῆρομαι "to see, to glance"	tog 覩	tou <sup>上</sup> 12 RI	tu: <sup>3</sup>	tu: <sup>3</sup> du <sup>3</sup>
227 dreggh	idle, lazy, nhd. träge, ahd. trāgi, mhd. traege, as. trāg, mnd. trāch, mnl. trāghe	dəg 怠	dai <sup>上</sup> 13 I	taj <sup>4*</sup>	tai <sup>4</sup> dai <sup>4</sup>
257 dhrogh	way, trail norw. (dialect) drog "trail of animals, valley", russ. doroga, poln. droga "way", (hebr. d-r-g)	do:g 道	dau <sup>上</sup> 25 I	tau <sup>4*</sup>	tao <sup>4</sup> dao <sup>4</sup>

\* In Early Mandarin, Middle Chinese rising tone changed not into third, but into fourth tone, if the initial was voiced.

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
522 <sup>^</sup> kak	be capable of, can acceptable, ai.śaknōti "can", aisl.hagr "suitable", mhd.behagen "acceptable"	hag  可	khā: <sup>上</sup>  27 I	kho: <sup>3</sup>	khY: <sup>3</sup>  ke <sup>3</sup>
597 <sup>^</sup> keuk	bright, shining, ai.śōcati, śúcyati	kəug 果	kau <sup>上</sup> 25 I	kau <sup>3</sup>	kao <sup>3</sup> gao <sup>3</sup>
		həug 皓	hau <sup>上</sup> 25 I	xau <sup>4</sup>	xao <sup>4</sup> hao <sup>4</sup>
		keug 皎	kieu <sup>上</sup> 25IV	kjau <sup>3</sup>	ʈɕjaŋ <sup>3</sup> jiao <sup>3</sup>
658 log	to gather gr. λέγω lat.legō	loag  累壘累	luə <sup>上</sup>	luəi <sup>3</sup>	lei <sup>3</sup>
659 logh	camp, nhd. Lager ags.lagu, mnd.lach, engl.law, ahd.luog	  壘	  5RIII		lei <sup>3</sup>
667 leig	body, corpse, (nhd.Leiche) got.leik, aisl.lik, ahd.lih, mhd.lih, engl."lych" in lych-gate	lhəig  體	thei <sup>上</sup>  13IV	thi: <sup>3</sup>	thi: <sup>3</sup>  ti <sup>3</sup>
687 leugh	to tempt, nhd.locken, ahd.lochon, lucchen, lockon, aisl. lokka ags.loccian, mnl.locken, mhd.lücken	leug  誘	jiu <sup>上</sup>  37 IV	iu <sup>3</sup>	jou <sup>4</sup>  you <sup>4</sup>
688 louk	lea, open field ahd.lōh, mnd.lōh, ags.leah, lit.laukas, nhd.lokal names: -loh	lo:g  野	ia <sup>上</sup>  29IV	ie <sup>3</sup>	ie <sup>3</sup>  ye <sup>3</sup>
700 mork	horse ir.marc, ahd.marah, ags.mearh, aisl.marr	mog  馬	mea <sup>上</sup>  29 II	ma: <sup>3</sup>	ma: <sup>3</sup>  ma <sup>3</sup>
(mongl.morj, -rg > -rj as in Scandinavian languages)					
748 merg	sea/lake, nhd.Meer, ags.merece, aisl.merki, aksl.morje	mhəig  海	hai <sup>上</sup>  13 I	xai <sup>3</sup>	xai <sup>3</sup>  hai <sup>3</sup>

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
799 polg	folk, nhd.Volk, ahd.ags.folc, aisl.,dän.,schwed.folk, poln.polk, (hebr.p-l-g)	bog 部	bou <sup>ɬ</sup> 12 I	pu: <sup>4</sup>	pu: <sup>4</sup> bu <sup>4</sup>
845 preg	impudent, nhd.frech, got.(faihu-)friks, "greedy after money", aisl.frekr, ags.frecc, ahd.freh "greedy"	peæg 鄙	pjæi <sup>ɬ</sup> 6 III	pi: <sup>3</sup>	pi: <sup>3</sup> bi <sup>3</sup>
898 sik <sup>w</sup>	to see, sight got.saihvan, aisl.sjā as.ahd. sehan, nhd.sehen ahd.mhd.siht, nhd.Sicht	ziæg 視	zjæi <sup>ɬ</sup> 6 III	ʃɜ: <sup>4</sup>	ʃɜ: <sup>4</sup> shi <sup>4</sup>
938 kreuk	backbone, nhd.Rückgrat, aisl.hryggr, ags.hrycg, ahd.(h)rukki, engl.ridge	liog 呂 膂	ljo: <sup>ɬ</sup> 11 III	leu <sup>3</sup>	ly: <sup>3</sup> lü <sup>3</sup>
965 slik	plum, sloe ahd.slēha, mhd.slehe, ags.slāh, nhd.Schlehe, poln.śliwka, russ.slīva	sliæg 李	ljæi <sup>ɬ</sup> 8 III	li: <sup>3</sup>	li: <sup>3</sup> li <sup>3</sup>
1032 treg 251 dhregh	dreg(s) gr.τερυξ, -τος, mhd.mnd.drec, ags.dreax, schwed.träck, nhd.Dreck (=Bodensatz)	tseæg 滓	tseæi <sup>ɬ</sup> 8 II	tsɜ: <sup>3</sup>	tsɜ: <sup>3</sup> zi <sup>3</sup>

It is fascinating to see that the velar final stop lost over 1500 years ago in Chinese is in most cases still preserved and pronounced in German, English, etc. even today. Furthermore, we find that in Modern Chinese some European proper names such as Hamburg 漢堡 and Marx (=Markus) 馬克斯 are meaningfully well transcribed. The common word "plum" 李 among Chinese, German and Slavic languages is very instructive as positive evidence against the Western Theory prevailing among Indo-Europeanists who would have limited the original homeland of Indo-Europeans to a small zone of Middle Europe with beech and birch trees ("Buche und Birke", cf. Kilian pp.36).

The following list will show that the Indo-European stems which semantically and phonetically correspond to Chinese words with vanishing tone have in most cases a dental final and sometimes -b or -p. Several words like 契 (392/405) and 自 (884/891) refer to stems with a dental, as well as those with a labial final.


Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
145 bhru-t	to boil, nhd.brodeln aisl.ags.broð, ahd.prot, bair.brod, engl.broth "Brühe"	pud 沸	pui去 10RIII	fi: <sup>4</sup>	fei <sup>4</sup> fei <sup>4</sup>
155 bhld	to split, to burst gr. φραδεῖν mhd.platzen, blätzen, nhd.platzen	pod	phoa去	phuo <sup>4</sup>	phuo <sup>4</sup>
169 bhorst	to burst, nhd.bersten (hebr. p-r-tz "to tear")	破	28 RI		po <sup>4</sup>
171 bhrust	breast, nhd.Brust got.ahd.mhd.brust an.brjost, ags.brēost	pud	phui去	fi: <sup>4</sup>	fei <sup>4</sup>
837 plut	aksl.plušta, apr.plauti aruss.pljuča "lung"	肺	10 RIII		fei <sup>4</sup>
207 drd	to defy, nhd.trotzen mhd.trätzen, tretzen mnd.trot, mhd.traz nhd.Trotz "defiance"	tod 鬥	təu去 37 I	təu <sup>4</sup>	tou <sup>4</sup> dou <sup>4</sup>
231 duisk	between, nhd.zwischen as.twisk, nl.tusschen engl.betwixt	tuəis 際	tsei去 15 IV	tsi: <sup>4</sup>	tʃi: <sup>4</sup> ji <sup>4</sup>
392 gerbh	to carve, nhd.kerben gr. γράφω ahd. kerban, ags.ceorfan	keb	khei去	khi: <sup>4</sup>	tʃhi: <sup>4</sup>
405 gred	to carve, nhd.kritzeln ahd.krizzōn, mhd.kritzen	ked 契	13 IV		qi <sup>4</sup>
412 ġhans	goose, nhd.Gans, ai.haṃsá-ḡ, gr. χήν, χάν lat.anser, ahd.gans, ags.gōs, aisl.gās	gans 雁	jean去 23 II	ean <sup>4</sup>	jen <sup>4</sup> yan <sup>4</sup>

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
431 ghland	glint, to glint, nhd.Glanz, glänzen ahd.mhd.glanz, glenzen	gland 爛	lan <sup>去</sup> 23 I	lan <sup>4</sup>	lan <sup>4</sup> lan <sup>4</sup>
	ditto (Satem-form, cf.p.4)	sland 燦	tshan <sup>去</sup> 23 I	tshan <sup>4</sup>	tshan <sup>4</sup> can <sup>4</sup>
436 ghelt	price, to be worth aisl.gjald, ags.gield, ahd.mhd.gelt, nhd.Geld, gelten	keəd 價	kea <sup>去</sup> 29 II	kea <sup>4</sup>	tçia <sup>4</sup> jia <sup>4</sup>
445 ghorst	nasty, nhd.garstig mir.goirt, mhd.mnd.garst; lit.grasà "nasty person"	foad	huai <sup>去</sup>	xuaj <sup>4</sup>	xuaj <sup>4</sup>
516 kad	to fall, ai.sad-, lat.cadō				
627 kuat	to turn sour lat.cāseus "cheese"	壞	14RII		huai <sup>4</sup>
453 ghost	stranger, outside lat.hostis got.gasts, ahd.as.gast ags.giest, engl.quest	hoad 外	hoāj <sup>去</sup> 16RI	uaj <sup>4</sup>	uai <sup>4</sup> wai <sup>4</sup>
The Chinese character has 夕 = 月 "moon" as phonetic and shows that a stranger must stay outside at night.					
488 g <sup>w</sup> həid	air, weather lett.gāiss "air, weather" lit.gāisas "gleam of light in the sky"	kəid 氣	khji <sup>去</sup> 9 III	khi: <sup>4</sup>	tçhi: <sup>4</sup> qi <sup>4</sup>
526 kanth	ridge, shore mnd.kant[e], nhd.Kante, afrz.cant	gand 岸	ŋan <sup>去</sup> 23 I	an <sup>4</sup>	an <sup>4</sup> an <sup>4</sup>
579 kerdh	herd, heritage, descent ai.sárdha-, apers.ǰard got.hairda, ahd.herta ags.heord, nhd.Herde	hed 系	hei <sup>去</sup> 13 IV	xi: <sup>4</sup>	çi: <sup>4</sup> xi <sup>4</sup>
666 lod	lazy, late, nhd.laß gr.λήσεν, lat.lassus got.lats, as.lat, ags.loet, ahd.laz	lād 賴	lāj <sup>去</sup> 15 I	laj <sup>4</sup>	lai <sup>4</sup> lai <sup>4</sup>
696 mogd	maid, (ach.jounger sister) got.magaps, ahd.magad, as.magath, nhd.Magd, Mädchen, ags.moeg	mod 妹	moi <sup>去</sup> 14RI	muəi <sup>4</sup>	mei <sup>4</sup> mei <sup>4</sup>



Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
819 purd	fart, to fart gr. πορδή, ahd.furz mhd.vurz, nhd.Furz, furzen, ags.feortan	pud 糞	phui <sup>去</sup> 10RIII	fi: <sup>4</sup>	fei <sup>4</sup> fei <sup>4</sup>
819 perd	fart, to fart, lat.pedo gr. πέρδω, πέρδομαι	pəd	phəi <sup>去</sup>	phi: <sup>4</sup>	phi: <sup>4</sup>
829 pezd	ahd.ferzan, aisl.freta ahd.firz, aisl.fretr	屁	6 IV		pi <sup>4</sup>
820 porkt	fright, to be fearful of ahd.as.forhta, ags.fyrhtu, nhd.Furcht, got.faurhts, ahd.as. ags.forht, nhd.furchtsam	pogd 怕	phea <sup>去</sup> 29 II	pha: <sup>4</sup>	pha: <sup>4</sup> pa <sup>4</sup>
884 selbh	self, nhd.selbst, selb(er), got.silba, anord.sjálfr, ags.self, ahd.selb	zəib	əzəi <sup>去</sup>	tsɿ: <sup>4</sup>	tsɿ: <sup>4</sup>
891 seit	since, nhd.seit ahd.sīd, mhd.sīt, ags.sīd, aisl.sīz	zəid 自	6 IV		zi <sup>4</sup>
892 sidh	to reach one's aim ai.sādhati, sídhyati	tsiəd 至	tɕjəi <sup>去</sup> 6 III	tɕi: <sup>4</sup>	tɕɿ: <sup>4</sup> zhi <sup>4</sup>
886 sōd	seat, chair, nhd.Sitz ai.sādas-, gr. ἕδος aisl.saetr, lit.sóstas	zoad 座	dzoə <sup>去</sup> 28 RI	tsuo <sup>4</sup>	tsuo <sup>4</sup> zuo <sup>4</sup>
908 sent	to send, to present got.sandjan, aisl.senda ahd.senten, ags.sendan nhd.senden, dän.send	seənd 進	tsiən <sup>去</sup> 17 IV	tsin <sup>4</sup>	tɕin <sup>4</sup> jin <sup>4</sup>
926 slid	slit aisl.slit, ahd.sliz, mhd.sliz, nhd.Schlitz	dziəd 此	dziə <sup>去</sup> 4 IV	tsɿ: <sup>4</sup>	tsɿ: <sup>4</sup> zi <sup>4</sup>
950 skoth	scathe, nhd.Schade(n) got.skāpis, aisl.skadi ags.scāda, ahd. scado	hōd 害	hāj <sup>去</sup> 15 I	xaj <sup>4</sup>	xaj <sup>4</sup> hai <sup>4</sup>

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
656 slab	sleep, nhd. Schlaf ahd.mhd.slāf, as.slāp ags.slāep, got.slēps	zuab	zjuā <sup>去</sup>	∫uej <sup>4</sup>	∫uej <sup>4</sup>
1048 suap	ai.svápati, svápati lat.sōpiō, aisl.sofa ags.swefan	zuab 睡	5RIII		shui <sup>4</sup>
1047 suendh	to dwindle, nhd.schwin- den, Schwund ahd.swintan, mhd.swin- den, ags.swindan	suənd 遜	son <sup>去</sup> 18 RI	sun <sup>4</sup>	ɣyn <sup>4</sup> xun <sup>4</sup>
1048 suent	quick aisl.svinnr, mhd.swinde, swint, geschwinde, nhd.geschwind	suənd 迅	suən <sup>去</sup> 18 RIV	sin <sup>4</sup>	ɣyn <sup>4</sup> xun <sup>4</sup>
1048 suent	strong, sound got.swinþs, aisl.svinnr, afries.sund, ahd.gisunt, as.gisund, ags.gesund, nhd.gesund	tsuənd 俊駿	tsuən <sup>去</sup> 18 RIV	tseun <sup>4</sup>	tɣyn <sup>4</sup> jun <sup>4</sup>
1049 suēp	besom, broom, to sweep ai. svapū, aisl.sōfl isl.sópa, engl.sweep	zuəb 筓 筓	zuei <sup>去</sup> 16 RIV	suəi <sup>4</sup>	suei <sup>4</sup> hui <sup>4</sup>
1050 suerth	sword, (ach. axe of sovereign)* ahd.mhd.swērt, as.afries.swērd, ags.sweord, nhd.Schwert	suəð 歲*	suei <sup>去</sup> 16 RIV	suəi <sup>4</sup>	suei <sup>4</sup> sui <sup>4</sup>
1112 uald	reign, power aisl.vald, afries.wald, as.giwalt, ags.geweald, ahd.giwalt, nhd.Gewalt, aksl.vlast,	uəid 位	uəi <sup>去</sup> 7 RIII	uəi <sup>4</sup>	uei <sup>4</sup> wei <sup>4</sup>
1147 uensk	want, wish, nhd.Wunsch ahd.wunsc, mhd.mnd. wunsch, ags.wūsc	guəns 願	ɣuan <sup>去</sup> 22RIII	uen <sup>4</sup>	yan <sup>4</sup> yüan <sup>4</sup>

\* Its archaic form  in the oracle inscriptions (1300 B.c.) is a drawing of an axe for slaughtering victims (cf. Chang 1970, p.135).

A great number of words with vanishing tone, however, were derived from Old Chinese words with final -g, as evidenced by Indo-European stems in the following list. It is a well-known fact that in Early Mandarin the words of Mch. rising tone all changed into vanishing tone if their initials were voiced or a vowel (cf. p.9\*). In many cases this tonal shift must have been on the way early before the sixth century, since words like 棧, 近 and 飯 are entered in the *Ch'ieh-yün* already with two readings in both rising and vanishing tone (cf. Chou Tsu-mo 1983, p. 67 and 71).

Pokorny page	stem	meaning and words examples	Ach.	Mch.	Nch.	Ch.
74	aug	again, also; nhd. auch gr. αὐ, got. auk, ahd. ouh, mhd. ouch, as. anl. ʊk, ags. eak, engl. eke	o:g 又	ju: 去 37III	iu <sup>4</sup>	jou <sup>4</sup> you <sup>4</sup>
220	dok	to con-duct, to lead lat. dūcō, (alat. doucō), lat. dux, ahd. herizogo, as. heritogo, nhd. Herzog "leader of army"	do:g 導	dau 去 25 I	tau <sup>4</sup>	tao <sup>4,3</sup> dao <sup>3</sup>
240	dhog <sup>w</sup> h	day, nhd. Tag got. dags, aisl. dagr, ahd. tac, ags. doeg, Pl. dōgor, as dag	dog 晝	tju 去 37III	tʃiu <sup>4</sup>	tʃou <sup>4</sup> zhou <sup>4</sup>
276	dhrogh	to deceive, deception ahd. triogan, gitrog as. bidriogan, gidrog engl. betray, trick	dzog 詐	tʃea 去 29 II	tʃa: <sup>4</sup>	tʃa: <sup>4</sup> zha <sup>4</sup>
657	leg	leak, to leak, nhd. leck anord. leka, ags. hlec, mnd. lak, mhd. lechen	lɔg 漏	lɔu 去 37 I	lɔu <sup>4</sup>	lou <sup>4</sup> lou <sup>4</sup>
669	leik <sup>w</sup>	to bestow, to grant got. leihvan, ahd. lihan, ags. lion, engl. loan	lɔig 賚	lai 去 13 I	laj <sup>4</sup>	laj <sup>4</sup> lai <sup>4</sup>
1076	trk	th(o)rough, nhd. durch ahd. durch, ags. ðurh	dog 透	thau 去 37 I	thəu <sup>4</sup>	thou <sup>4</sup> tou <sup>4</sup>
1117	wog	awake, nhd. wachen lat. vegeo, got. wakan, aisl. vaka, as. wakon, ahd. wahn	gog 寤悟	you 去 12RI	u: <sup>4</sup>	u: <sup>4</sup> wu <sup>4</sup>

As to the words of the Middle Chinese level tone the following Indo-European correspondences may be given:

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
39 an	preposition: on got.ana, as.an, ags.on, ahd.ana, an, nhd.an	oan 沿	uen <sup>1</sup> 21 RIV	ien <sup>2</sup>	jen <sup>2</sup> yan <sup>2</sup>
121 bhol 804,4 pol	cup, bowl, nhd.Bolle aisl.bolli, ags.bolla, mhd.bolle; ai.pāla	poi 杯	poi <sup>1</sup> 14 RI	puai <sup>1</sup>	pei <sup>1</sup> bei <sup>1</sup>
136 bhera	bear, nhd. Bär ai.bhalla-h, ahd.bero, ags.bēra, mhd.bēr, mnd.bēre, bare	peia 罷	pjiə <sup>1</sup> 4 III	phi: <sup>2</sup>	phi: <sup>2</sup> pi <sup>2</sup>
197 dlongh	long mpers.drang, npers. dirang, lat.longus, got.laggs, an.langr ahd.ags.nhd.lang	dlāṅ 長	ɕjāṅ <sup>1</sup> 31 III	tʃhəj <sup>2</sup>	tʃhəj <sup>2</sup> chang <sup>2</sup>
214 drou	tree, wood av.dāuru, gr.δέντρον, alb.dru, got.triu, ags.trēow, as.trio	tou 株	tjou <sup>1</sup> 12 III	tʃeu <sup>1</sup>	tʃsu: <sup>1</sup> zhu <sup>1</sup>
263 dhūn	town (-ton in local names) air. dūn "castle" aisl.ags.tūn "town" nhd.Zaun	dun 屯	don <sup>1</sup> 18 RI	thun <sup>2</sup>	thun <sup>2</sup> tun <sup>2</sup>
		tun 村	tshon <sup>1</sup> 18 RI <sup>1</sup>	tshun <sup>1</sup>	tshun <sup>1</sup> cun <sup>1</sup>
278 dor	door, (Ach. gate of city) got.daúr, ahd.tor, as.dor, dur, ags.dor gr.θύρα, lat.forum	to: 闕都	tou <sup>1</sup> 12 RI	tu: <sup>1</sup>	tu: <sup>1</sup> du <sup>1</sup>
355 ger 639 k <sup>w</sup> el	to turn, gr.τέλος "end" afries.kēra, as.kērian, kierian, ahd.kēran, mhd.keren, nhd.kehren	kuei 歸	kui <sup>1</sup> 10RIII	kuai <sup>1</sup>	kuei <sup>1</sup> gui <sup>1</sup>
639 k <sup>w</sup> el 1140 wel	to turn, gr.πέλω ai, válati, gr.εἰλέω ahd. mhd. wellan, ags. wael "swirl"	fuai 回	hoi 14 RI	xuəi <sup>2</sup>	xuei <sup>2</sup> hui <sup>2</sup>

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
355 gā	to sing, song ai.gāyati, gāti "sing" gāthā "song, verse"	ka:	kā:𠄎	ko: <sup>1</sup>	kY: <sup>1</sup>
530 kar	to praise ai.carkati "to praise", kārú "singer"	歌	27 I		ge <sup>1</sup>
361 gleu	ball, clew ai.glāu-h, npers.gulūle ahd.kliuwa, kliwā, ags.clíewen, engl.clew	gleu 球綵	gju𠄎 37 III	khiu <sup>2</sup>	tçhjou <sup>2</sup> giu <sup>2</sup>
367 glōu	sister of husband gr. ἀδελφῆς, lat.glōs serb.sāova, russ.zořovka	kou 姑	kou𠄎 12 RI	ku: <sup>1</sup>	ku: <sup>1</sup> gu <sup>1</sup>
413 ghau	to call, to cry ai.hāvate, av.zavaiti, aksl.zouq, zıvati, russ.zvatp	hau	hau𠄎	xau <sup>2</sup>	xao <sup>2</sup>
535 kau	to howl, nhd.heulen ai.kauti, gr.kw-kūw, mhd.hiulen, mnd.mengl. hūlen	號 嗥	25 I		hao <sup>2</sup>
413 ghau	to boast gr. κούρομαι	hau 豪	hau𠄎 25 I	xau <sup>2</sup>	xao <sup>2</sup> hao <sup>2</sup>
447 gheu	to pour gr. χέω	keu 澆	kieu𠄎 25 IV	kjau <sup>1</sup>	tçjao <sup>1</sup> jiao <sup>1</sup>
	deposit gr. χούς, older dialect xóu; xów "to deposit"	heu 堯	hjeu𠄎 25 III	jau <sup>2</sup>	jao <sup>2</sup> yao <sup>2</sup>
449 ghəu	watershed, nhd. Gau got.gawi, ahd.gawi, mhd.gou, göu, geu, mnd.gō	kəu 皋	kau𠄎 25 I	kau <sup>1</sup>	kao <sup>1</sup> gao <sup>1</sup>
gheu-	watershed, district *"satem"-Form (cf.p.4)	tseu* 洲	tçju𠄎 37 III	tçiu <sup>1</sup>	tçou <sup>1</sup> zhou <sup>1</sup>
482 g <sup>w</sup> ou	cow ai.gāuh, arm.kov, gr. βόυς, lat.bōs, bovis, ahd.chuo, as.kō, ags.afries.cú, nhd.Kuh, (Taiwan gu:)	gou 牛	gju𠄎 37 III	iu <sup>2</sup>	njou <sup>2</sup> niu <sup>2</sup>

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
520 koil	hale, whole got.hails, aisl.heill, ahd.mhd.heil, ags.hāl, nhd.heil	hoi 恢	khoi 14 RI	khuəi <sup>1</sup>	xuei <sup>1</sup> hui <sup>1</sup>
535 kau	to hew, nhd.hauen ahd.houwan, ags.hēawan, lit.kāuti	hau 敲	kheau <sup>平</sup> 25 II	kheau <sup>1</sup>	tɕjao <sup>1</sup> qiao <sup>1</sup>
537 kol	hollow, nhd.hohl ahd.mhd.as.ags.hol	ho: 虛	hjo: 11 III	xeu <sup>1</sup>	ɕy: <sup>1</sup> xu <sup>1</sup>
593 kou	lat.cavus from * coṽos	虛	11 III		xu <sup>1</sup>
544 kol	hill ags.hyll, lat. collis	hoi 丘	khju <sup>平</sup> 37 III	khiu <sup>1</sup>	tɕhjou <sup>1</sup> qiu <sup>1</sup>
544 kolm	rock, holm gr.κολοφών, lat.columen, culmen, as.mnd.engl.holm, nhd.Holm	hōm 巖	ɲeom <sup>平</sup> 40 II	eam <sup>2</sup>	ien <sup>2</sup> yen <sup>2</sup>
555 kom	hame (part of a harness) mnl.hāme, nnl.haam, westmd.Hamen, nhd.dia- lect Ham, Hamen	hōm 銜	hēom <sup>平</sup> 40 II	xeam <sup>2</sup>	ɕien <sup>2</sup> xian <sup>2</sup>
556 kem	to hum mhd.nhd.mengl.hummen	hām 吟	ɲjəm <sup>平</sup> 38 III	jəm <sup>2</sup>	jīn <sup>2</sup> yīn <sup>2</sup>
564 kon	to strive, industrious lat.cōnor, -ārī gr.ἐγκουέω	gon 勤	gjon <sup>平</sup> 19 III	khin <sup>2</sup>	tɕhin <sup>2</sup> qin <sup>2</sup>
565 knk	hunger, nhd.Hunger anord.hungr, ags.hungor, ahd.hungar; lit.kankà "pain"	hoāj 荒	hoāj <sup>平</sup> 32 RI	xuang <sup>1</sup>	xuaj <sup>1</sup> huang <sup>1</sup>
582 kor	to mix, to blend av.sar-, gr.κεράω an.hrōra, ags.hrēran, ahd.(h)ruoren	hōa 和	hōa <sup>平</sup> 28 RI	xuo <sup>2</sup>	xy: <sup>2</sup> he <sup>2</sup>
583 kor	hair, rough ahd.as.aisl.hār, ags.haēr, nhd.Haar, an.skqr lett.sari	hō: 毫 豪	hāu <sup>平</sup> 25 I	hau <sup>2</sup>	xao <sup>2</sup> hao <sup>2</sup>

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
644 k <sup>w</sup> a	who? what? ai.káh, k̄ā, av.kō, k̄ā "who?", got.hva "what", apr.ka, mengl.aengl.hwā, engl.who	fua 何	fā: 𠄎 27 I	xo: 2	xy: 2 he <sup>2</sup>
644 k <sup>w</sup> ei	where? whither? why? gr.att.πῖῆ, ion.kῖ, dor.πεῖ	fei 𠄎	fei 𠄎 13 IV	xi: 2	çi: 1 xi <sup>1</sup>
	who? which? lat.quis "who?", qui "which?" ahd.(h)wer, as.huē, mhd.swer, ir.cia, nhd.wer	zuəi (Satem- form) 誰	zjuəi 𠄎 7 RIII	juəi 2	ɕuei <sup>2</sup> shui <sup>2</sup>
647 k <sup>w</sup> u	where? whither? ai.kū, av.kū, lat.quō, ahd.(h)war, wā, mhd.wō, nhd.wō, ags.hwær	hu: 惡	?ou 𠄎 12 RI	u: 1	u: 1 wu <sup>1</sup>
648 k <sup>w</sup> u	how? why? ags.hū, afries.hū, mnd.wū, engl.how; lat.quō "why"	hu: 胡	hou 𠄎 12 RI	xu: 2	xu: 2 hu <sup>2</sup>
716 mol	to grind, mill lat.molō, -ere, mola got.ahd.malan, mhd.maln aisl.mala, nhd.mahlen	moa 磨	moā 𠄎 28 RI	muo <sup>2</sup>	muo <sup>2</sup> mo <sup>2</sup>
731 mang	fraud, vagabond lat.mangō, lit.manga; apr.manga	māŋ 氓	meaŋ 𠄎 35 II	muəŋ <sup>2</sup>	məŋ <sup>2</sup> / maŋ <sup>2</sup> mang <sup>2</sup>
736 mōra	witch aisl.ahd.mara, ags.mare, nhd.Mahr, skr.-ksl.mora	mo: 巫	mbjou 𠄎 12 III	wu: 2	u: 2 wu <sup>2</sup>
734 mor	to defame russ.maráju, lit.mùršinu	mo: 誣	mbjou 12 III	wu: 2	u: 2 wu <sup>2</sup>
755 nāu	ship, (ach.also "rudder") ai.nāu-, arm.nav gr.ναῦς, νῆος, lat. navis, nau-, air.náu, aisl.nōr	ndau 橈	nzjeu 𠄎 25 III	zjau <sup>2</sup>	zao <sup>2</sup> rao <sup>2</sup>
772 ō	preposition: on, at, to, from ai.ā, av.aper.ā russ.o	o: 於	?jo 𠄎 11 III	eu <sup>1</sup>	y: 2 yu <sup>2</sup>

Pokorny page	stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
788	pan	flag, cloth, rag gr. $\pi\tilde{\eta}\nu\omicron\varsigma$ , lat. pannus, got. fana, ahd. as. fano, afries. fona, ags. fana, nhd. Fahne	pan  幡	phuan $\bar{p}$  22RIII	fan <sup>1</sup>	fan <sup>1</sup>  fan <sup>1</sup>
801 817	pol por	to fly gr. $\pi\alpha\lambda\lambda\omega$ "to swing" russ. -ksl. perq, p <sub>2</sub> rati, pariti "to fly"	poi  飛	pui $\bar{p}$  10RIII	fi: <sup>1</sup>	fei <sup>1</sup>  fei <sup>1</sup>
803	pela	fell, skin gr. $\pi\acute{\epsilon}\lambda\alpha\varsigma$ , lat. pellis, ahd. fel, ags. fell, mhd. vell, aisl. fjall	beia  皮	bjia $\bar{p}$  4 III	phi: <sup>2</sup>	phi: <sup>2</sup>  pi <sup>2</sup>
803	plo	membrane gr. $\acute{\epsilon}\pi\acute{\iota}\text{-}\pi\lambda\omicron\text{[F]}\omicron\varsigma$ lit. plévē, sloven. pléva aisl. fql, fqlva	plo  膚	pjou $\bar{p}$  12IIII	fu: <sup>1</sup>	fu: <sup>1</sup>  fu <sup>1</sup>
835	pleu	to float gr. $\pi\lambda\acute{\epsilon}\text{(F)}\omega$ aksl. plujq	biəu  浮	bjū $\bar{p}$  37IIII	fu: <sup>2</sup>	fu: <sup>2</sup>  fu <sup>2</sup>
837	plou	boat, float ai. plava, russ. plov	biou  桴	bjou $\bar{p}$  12IIII	fu:	fu: <sup>2</sup>  fu <sup>2</sup>
844	prāi	to nurse, to cultivate ai. priyayatē aksl. prējq	bai  培	boi $\bar{p}$  14 RI	phu $\acute{\iota}$ <sup>2</sup>	phei <sup>2</sup>  pei <sup>2</sup>
884	so	so, as, if lat. si from so got. swa, swē, ahd. as. mhd. sō, nl. zo, engl. norw. so	zo:  如	zjo $\bar{p}$  11IIII	zeu <sup>2</sup>	zu: <sup>2</sup>  ru <sup>2</sup>
907	song <sup>w</sup> <sub>h</sub>	voice, nhd. Sang gr. $\acute{\omicron}\mu\phi\acute{\eta}$ (*song <sup>u</sup> ha) got. saggws, ahd. as. ags. dān. sang, anord. songr, engl. song	səŋ  聲	ɕjaŋ $\bar{p}$  35IIII	ɕiaŋ <sup>1</sup>	ɕəŋ <sup>1</sup>  sheng <sup>1</sup>



Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
907 sen	old, (before, in front of), former ai.sana-, av.hana-, gr. $\xi\nu\omicron\varsigma$ , lat.senex, air.sen "old"	seən 先	sien <sup>1</sup> 23 IV	sien <sup>1</sup>	çien <sup>1</sup> xian <sup>1</sup>
		zeən 前	dzien <sup>1</sup> 23 IV	tshien <sup>2</sup>	tçhien <sup>2</sup> qian <sup>1</sup>
913 sūn	son, (ach.grandson and heir) ai.sūnn, av.hunu- <sup>√</sup> s, nhd.Sohn, got.sunus, aisl.sunr, ahd.ags.sunn, mhd.su(o)n, sūn	suən 孫	son <sup>1</sup> 18 RI	sun <sup>1</sup>	sun <sup>1</sup> sun <sup>1</sup>
915 siū <sup>1</sup>	to sew together, to re-pair ai.sívyati, lat.suō.-ere, got.siujan, aisl.sýja, ahd.siuwan, ags.si(o)wian	siu 修	siu <sup>1</sup> 37 IV	siu <sup>1</sup>	sjou <sup>1</sup> xiu <sup>1</sup>
927 skal	shall, nhd.sollen got.skulan, ahd.sculan, scolan, aengl.sceal	zga: 宜	ŋjia <sup>1</sup> 4 III	i: <sup>2</sup>	i: <sup>2</sup> yi <sup>2</sup>
927 skol	guilt, nhd.Schuld ags.scyld, ahd.aisl. skuld, alit.skolā	ko: 辜	kou <sup>1</sup> 12 RI	ku: <sup>1</sup>	ku: <sup>1</sup> gu <sup>1</sup>
951 skō	shoe, nhd.Schuh got.skōhs, aisl.skōr mhd.schuoch, as.skōh, ags.scōh, dān.Schwed.sko	hoa 靴	huā <sup>1</sup> 28RIII	xue <sup>1</sup>	çye: <sup>1</sup> xue <sup>1</sup>
1003 sreu (330 erei)	to flow, river ai.srávati, gr. $\rho\acute{\epsilon}\iota\omega$ ; $\rho\acute{\omicron}\omicron\varsigma$ , $\rho\acute{\omicron}\nu\varsigma$ , aksl.struja, lett.strāve, lat.rīvus, afz.riu, span.rio	sleu 流	lju <sup>1</sup> 37 III	liu <sup>2</sup>	ljou <sup>2</sup> liu <sup>2</sup>
1009 steu	to steer, nhd.steuern ahd.stiurren, aisl.stýra, as.stíeran, ags.stýran	tsəu 操	tshau <sup>1</sup> 25 I	tshau <sup>1</sup>	tshao <sup>1</sup> cao <sup>1</sup>
1036 strenk	string, nhd.Strang gr. $\sigma\tau\epsilon\alpha\upsilon\tau\acute{\alpha}\lambda\eta$ , mir.sreng, ahd.mhd. stranc, ags.streng	zeəŋ 繩	zjəŋ <sup>1</sup> 42 III	fjəŋ <sup>2</sup>	çəŋ <sup>2</sup> sheng <sup>2</sup>

Pokorny page stem	meaning and word Examples	Ach.	Mch.	Nch.	Ch.
1037 stronk	strong and severe ahd.strengi, mhd.strengē, as.fries.strang, ags. strong, anord.strangr, nhd.streng	tsāŋ 壯 tsāŋ 莊	tʃeəŋ <sup>平</sup> 31 II tʃeāŋ <sup>平</sup> 31 II	tʃuaŋ <sup>4</sup> tʃuaŋ <sup>1</sup>	tʃuaŋ <sup>4</sup> zhuang <sup>4</sup> tʃuaŋ <sup>1</sup> zhuang <sup>1</sup>
1039 sour	salted, sour aisl.sūrr, ahd.mhd.mnd. ags.norw.dän.schwed. sur, lit.sūras, nhd.sauer	so: 道	tseo <sup>平</sup> 11 II	tseu <sup>1</sup>	tʃy: <sup>1</sup> ju <sup>1</sup>
341 sun	to be, real, true ahd.mhd.sin, nhd.Sein, ai.san, got.sunja "truth"	sən 真	tʃjən <sup>平</sup> 17 III	tʃin <sup>1</sup>	tʃən <sup>1</sup> zhen <sup>1</sup>
1067 tongh	to bend a bow av.ʃang	tāŋ 張	tʃjāŋ <sup>平</sup> 31 III	tʃaŋ <sup>1</sup>	tʃaŋ <sup>1</sup> zhang <sup>1</sup>
1067 tenk	court (of justice) nhd.Ding, also as local names, aisl.þing, ags.đing, as.thing, ahd. ding, dän.ting, aengl.thing "assembly"	teəŋ 廳 deəŋ 庭廷	thieŋ <sup>平</sup> 35 IV dieŋ <sup>平</sup> 35 IV	thiəŋ <sup>1</sup> thiəŋ <sup>2</sup>	thiəŋ <sup>1</sup> ting <sup>1</sup> thiəŋ <sup>2</sup> ting <sup>2</sup>
1072 treu	sorrow, dreary ahd.drōa, aisl.þrā ags.đrea, đrawu	dzeu 愁	dʒeu <sup>平</sup> 37 II	tʃhəu <sup>2</sup>	tshou <sup>2</sup> chou <sup>2</sup>
1147 wan	contented with, to reside aisl.una, afries.wonia, as.wonōn, wunōn, ahd.wōnen, nhd.wohnen	uan 安	?ān <sup>平</sup> 23 I	an <sup>1</sup>	an <sup>1</sup> an <sup>1</sup>
1171 war/s	was, stem form of verb to be, dän.var "was", voere "is", got.wisan, ahd.wesan, nhd.war, wahren	ua: 爲	uə <sup>平</sup> 5 RIII	uəi <sup>2</sup>	uei <sup>2</sup> wei <sup>2</sup>
— (cf. Heubeck, p.26,65)	king gr.Linear B inscription wa-na-ka = wanaks, 𐀮𐀺𐀫𐀸, att.𐀮𐀺𐀫𐀸 "king"	uāŋ 王	uāŋ <sup>平</sup> 32RIII	uaŋ <sup>2</sup>	uaŋ <sup>2</sup> wang <sup>2</sup>

A group of words with Middle Chinese level tone was supposed originally to have had a velar final as suggested by the sound component 聲符 of the characters. The hitherto merely theoretical reconstruction of -g for these words by Karlgren (1940, 1957) and Tung T'ung-ho (1944) can now be confirmed by Indo-European stems given in the following list:

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
100 bok	pack, pouch, to pack an.poki, got.puggs, ags.pohha, mnd.packe, pak, engl.pack, nhd.Pack	poug 包	peau <sup>平</sup> 25 II	pau <sup>1</sup>	pao <sup>1</sup> bao <sup>1</sup>
113 bhōg	to bake, to roast, to fry, gr. $\phi\acute{\upsilon}\gamma\omega$ , aisl.baka, fries.bāk, ags.bacan, bōc, ahd.bahhan, backan, mhd.nhd.backen	boug 炮包	beau <sup>平</sup> 25 II	phau <sup>2</sup>	phao <sup>2</sup> pao <sup>2</sup>
798 pok <sup>w</sup>	to cook, cook ai.pácati, av.pačiti, gr. $\pi\acute{\epsilon}\lambda\lambda\omega$ , serb.pěci, lat.coquō (>ahd.kochōn, nhd.kochen)	boug 庖	beau <sup>平</sup> 25 II	phau <sup>2</sup>	phao <sup>2</sup> pao <sup>2</sup>
523 řakha	flexed stick in the form of plow (nhd. Knie- stiel), bough ai.sākha, mir.gēc, nir.géag, got.hōha, lit.řakā, slav.socha	ka: 柯	kā: <sup>平</sup> 27 I	kho: <sup>1</sup>	khy: <sup>1</sup> ke <sup>1</sup>
589 keug	to squat, nhd.hocken aisl.hūka, mhd.hūchen, serb.čučati	kio(g) 居尻	kjo <sup>平</sup> 11 III	keu <sup>1</sup>	čgy: <sup>1</sup> ju <sup>1</sup>
589 kōk	high, nhd.hoch got.hauhs, aisl.hōr, hār, ags.hēah, ahd.as.hōh, schwed.hög, dán.høi, engl. high	ko:(g) 高	kau <sup>平</sup> 25 I	kau <sup>1</sup>	kao <sup>1</sup> gao <sup>1</sup>
589 keuk	hill ahd.houg, mhd.houc, anord.haugr, engl.(local names with -how)	hio(g) 虛墟	khjo <sup>平</sup> 11 III	xeu <sup>1</sup>	cy: <sup>1</sup> xu <sup>1</sup>

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
537 kōg	hook, nhd. haken ahd.hako, haggo, mhd. hagge, hake, ags. hoc	koug  鉤	kəu <sup>平</sup>  37 I	kəu <sup>1</sup>	kou <sup>1</sup>  gou <sup>1</sup>
669 lik <sup>w</sup>	to remain gr. ἄλιπτος, lat.reli- cuos "left over", lit.likti "to remain"	liu  留	lju <sup>平</sup>  37 III	liu <sup>2</sup>	liou <sup>2</sup>  liu <sup>2</sup>

It is obvious that the words cited above and some others had lost their velar final in any case before the general shift from Old Chinese to the Middle Chinese tone language during the fourth and fifth centuries. The exact dating of the loss, however, must be done for each word individually on the basis of its rhyming in the poetic literature of different times. Words like 柯 and 留 rhyme in the *Shih-ching* exclusively with those of Middle Chinese level tone. Hence they were without doubt open syllables already at the beginning of the first millennium B.C. Words like 居, 高 and 墟, rhyming in the *Shih-ching* and *Ch'u-tz'u* 楚辭 with the words of later rising as well as level tone, were just about to lose their velar final in the first millennium B.C., whereas 包, 炮, 庖, and 鈎, lost it surely as late as during the shift to Middle Chinese.

Adhering to the thesis of the closed syllabic system of Old Chinese, Pulleyblank (1962, pp. 211) proposed to restore generally a voiced laryngal [h] as the lost final consonant of the level tone which should also account for the relationship of some level tone words to velar final. But this is unnecessary in my opinion, since the most Indo-European stems and Germanic words corresponding to Chinese level tone words have either open syllable, or end in a resonant (-r, -l, -m, -n, -ng), as already shown in the list above (pp. 17-23).

It should be noted that the phonetic reconstructions in this paper differ from those of Karlgren and other scholars mainly in regard to vocalism (cf. Rhyme Tables in Appendix). As to Middle Chinese, my reconstructions are based upon the *Yün-ching* 韻鏡, in which rhymes and headwords of homophone groups 紐 are taken from the rhyme dictionary *Kuang-yün* 廣韻 (1007) and arranged systematically in 43 tables. As the *Kuang-yün* is merely an enlarged version of the *Ch'ieh-yün* 切韻 (compiled in 601), the *Yün-ching* may be considered to be a phonetic framework which reflects the standard pronunciation of Early Middle Chinese (600), regardless of the uncertain date and unknown origin of this book (its oldest available copy is an edition of 1161).

Each rhyme table in the *Yün-ching* is divided into the four tone categories and, within each tone, the headwords of homophone groups are entered in four separate rows, obviously to show some differentiations within the same rhyme group. The Chinese term for these rows is 等, called "Division" by Karlgren and "Grade" by Pulleyblank (cf. 1986, p.73). In addition, each table is characterized as 開 "unrounded", 合 "rounded" or 開合 "a combination of rounded and unrounded".

Karlgren (1954, p.250) inferred the Grades correctly as a gradual rising of vowels and restored medium j- for Grade III, i- for Grade IV, ju- for Grade R III and iu- for Grade R IV. But he found no medials for Grade II, Grade R I and Grade R II. In order to adhere to the full pattern of distinctions in the system of four Grades, he resorted to the variation of the quality of principal vowels Grade by Grade and posited thus altogether 14 vowels for Middle Chinese. It is hardly credible that such slight vocalic nuances were practicable in daily communication, the less so since languages with more than nine basic vowels are quite uncommon in the world (cf. Crothers, p.119). No wonder that his vocal reconstructions scarcely fit the actual rhyme pattern of poetry in Middle and Old Chinese. In a monograph of 1982, I attempted to analyse the rhyming in the texts of philosopher Chuang-tzu 莊子 (about 300 B.C.) by using the dictionary of Chou Fa-kao (1974), in which the reconstructions of Karlgren, Tung T'ung-ho and Chou are collocated. The disappointing result thereby has given me reason for personal engagement in the field of historical phonology and phonetics.

Thus Karlgren's scheme of Middle Chinese rhymes, though followed by almost all scholars, needs to be substantially improved. I propose the following reconstructions:

- a. Grade II 開口二等 is composed of rhyme simplex (=Grade I) and medial e-, which gives rise to palatalization of initial dentals and sibilants, but not velars.

Medial e- was, as evidenced by transcriptions in hP'ags-pa script, still extant in Early Mandarin (cf. Appendix, p.50) and was used in distinction from i-, especially after velar initials;

ea 牙 (<29 II) ≠ je 耶 (>29 III, IV)

ej 崖 (<13, 15II) ≠ i: 倪 (<13 III, IV; 15 IV)

eäu 𪗇 (<25 II) ≠ jau 𪗇 (<25 III, IV)

ean 顏 (<21, 23 II) ≠ ien 言 (<21, 23 III, IV)

eam 巖 (40 II) ≠ iem 巖 (<40 III, IV)

After labials, medial e- was dropped in Early Mandarin, so that Grade II merged with Grade I. After dentals and sibilants Grade II merged with Grade I or Grade III. In Sino-Japanese Go'on readings Middle Chinese /ea/ is contracted to /e:/, whereas in colloquial Taiwanese dialects of Minnan origin, /ea/ became either /e:/ or /a:/.

- b. Grade III has a medial j-, as proposed by Karlgren, which gives rise to palatalization of initial dentals and sibilants, but not velars. The vowel or vowel clusters of Grade III remain mostly identical with those of Grade I and II. But in groups 13, 25, and 23, the main vowel /a/ is raised to /e/.
- c. Grade IV contains /i/ either in the first or in the last position of its vowel clusters. This accounts partly for the non-palatalization of initial dentals and sibilants. Characteristic of Grade IV is the fronting of <sup>the</sup> main vowel; thus in groups 13, 15, 25, 35, 21, 23, and 39, the main vowel /a/ is fronted to /e/, whereas in group 40 /o/ is fronted to /a/.
- d. Grade R(ounded) I 合口一等 is composed of medial o- plus rhyme simplex (= Grade I). Exceptions are Grade 14R I and 18R I where /o/ became the main vowel, as well as Grade 12R I and 2R I where the simplex /ou/ is placed because of o-. The reconstruction of the medial o- for Grade R I is, though hitherto never proposed by scholars, reasonable and coherent, since this grade must have

had a rounded medial vowel which is lower than u- of Grades R II, R III, and R IV. In Early Mandarin, or probably already at Late T'ang, the medial o- was raised and merged with u-. But in Sino-Vietnamese readings o- is amply preserved as Grade R I (and occasionally also as Grade II, but this is not in accordance with the rule). For example:

- 28 R I /oa/: 科 khoa (but 戈 qua), 訛 ngoa, 和 hòa, 朵 đóa  
 14 R I /oi/: 灰 khôi 恢 khôi, 回 hôi, 雷 lô-i, 杯 bôi  
 16 R I /oaj/: 外 ngoai, 最 tô-i, 會 hôi  
 18 R I /on/: 魂 hôn, 村 thôn  
           /ot/: 沒 môt, 卒 tốt, 骨 cót  
 24 R I /oan/: 桓 hoàn, 酸 toan (but 官 quan)  
           /oat/: 奪 đoạt, 活 hoạt (but 末 mạt)  
 32 R I /oãŋ/: 黃 hòang, 荒 hoang (but 光 quang, 汪 uông)  
           /oøk/: 廓 khoách (but 郭 quách)  
 43 R I /oæŋ/: 弘 hoăng (but 肱 quăng)  
           /oøk/: 或 hoặc (but 國 quốc)

The Middle Chinese pronunciations on/ot of Grade 18R I are preserved also in Sino-Japanese readings.

- e. Grade R II is composed of medial u- plus rhyme simplex. After sibilants and dentals it has medial cluster eu- which gives rise to palatalization of initials.
- f. Grade R III also has medial u-, and only after sibilants and dentals the medial cluster ju- as proposed by Karlgren. In my opinion, the medial u- was a sufficient cause to give rise to dentilabialization of bilabials during the Late T'ang. The main vowels of Grade R III are identical with those of Grade III.
- g. Grade R IV has medial u-, but not iu- as proposed by Karlgren. It is composed of medial u- plus Grade IV. In groups 5R, 26R, 36R, 18R, 22R, and 24R, medial u- replaces medial i- of Grade IV. The non-palatalization of dentals and sibilants in Grade R IV can be accounted for with medial u-.

According to my reconstruction Early Middle Chinese has the following seven vowels: i u

e ə o

a ǎ

All vowels except ǎ are not autonomous but must occur in combination with other vowels or finals, as is reflected in the absence of the simplex in the rhyme groups 29, 9, and 11, whereas simple u must be supported by ə in Grade 37 I.

Short i, used as medial or final, is written j in this paper. /ǎ/ = [ɔ], is a hybrid phoneme between /a/ and /o/, as extant in Swedish, Norwegian, Danish etc.. The reconstruction of /ǎ/ is necessary for rhyme group 27 (≠ 29), 3 and 31 (≠ 1, 2, 33, 35). As shown in the Appendix (p. 49), Middle Chinese has immense numbers of di- and triphthongs with medial e-, j-, i- and with finals -i, -j, -u which have emerged partially as compensation for lost final stops. Similar developments of vowel clusters are reflected in written monuments of Old Saxon, Old English, Danish, Old French etc. several centuries later, but may have occurred synchronically to Chinese during the period of great migration of northern tribes.

Old Chinese has the same seven basic vowels. /ǎ/ is also indispensable for the rhyme group ǎŋ (= mch. 31) which in Old Chinese poetry mostly rhymes inside the group, but occasionally contacts the group aŋ (= mch. 33, 35) as well as the group oŋ (= mch. 1, 2). The corresponding vowel in Indo-European also vacillates, and is written /o/ in some dialects, but /a/ in others (cf. the word 長 "long", p. 17, Nr. 197). /ə/ is the neutral vowel which can interchange with all other vowels. The high vowels i, e, u occur frequently in company with ə. The autonomous /ə/ in Old Chinese became mostly /əi/, /iə/, /ei/ etc. in Middle Chinese, and later /i/, /ɨ/ in Early Mandarin. This affinity of /ə/ and /i/ has its parallel in Old Indic where the Proto-Indo-European /ə/ changed to /i/ (cf. Lehmann 1955, p. 97).

On the basis of the word examples given in this paper, we may posit the following vocalic correspondences between Indo-European and Old Chinese:



IE a = ə, a, ǎ, oa, o	IE ai = ai, a:	IE au = au, əu, ǎ, o:
IE e = e, ə, eə	IE ei = əi, ei	IE eu = eu, əu, io
IE o = o, oə, oa, ǎ, ou	IE oi = oi, əi, ou	IE ou = ou, o:
IE i = iə, i		IE iu = iu, io
IE u = u, uə, ə, o, uo	IE ui = uə	
IE ə = a, ə	IE əi = əi	IE əu = əu, au

The initials of Early Middle Chinese are well documented by the 30 characters<sup>1)</sup> chosen by the late T'ang monk Shou-wen 守溫 (cf. Chou Tsu-mo p. 796, 957). They are:

labials:	不 p	芳 ph	並 b	明 m	4	
dentals:	端 t	透 th	定 d	泥 n	來 l	5
palatals:	知 t̚	徹 t̚h	澄 d̚	日 n̚	4	
velars:	見 k	溪 kh	群 g	疑 ŋ	4	
postdentals:	精 ts	清 tsh	從 dz	心 s	邪 z	5
palatals:	照 t̚ç	穿 t̚çh	審 ç	禪 ç̚	4	
laryngeals:	影 ʔ	曉 h	匣 h̥	喻 ø	4 / total 30	

It is noteworthy that the existence of phonemic laryngeals, which has been rejected for Proto-Indo-European for more than fifty years (cf. Lehmann 1955, p. 22, note 1; Szemerényi p. 116), is well evidenced for Middle Chinese with four initials. Beside the consonants given above, Karlgren (1940, p. 16), Li-Fang-kui (1982, p. 7) and Pulleyblank (1984, p. 191, 232) would restore series of supradental initials for Grade II and thus expand the number of Middle Chinese initials to 36, 37, and 42 respectively. But this is wrong and unnecessary, since the distinctive feature of Grade II is accounted for with medial e- (cf. p. 27 above). In my opinion, the retroflex initials have emerged not in Middle Chinese, nor in Early Mandarin, but as late as in Early Ch'ing, in consideration of the fact that all dialects except Modern Mandarin are at present still lacking retroflexes. In this respect the Szechwan dialect is most instructive, as it has typical Early Mandarin finals, but no retroflex initials. All initials of Middle Chinese are monophonematic. The absence of consonant clusters is since then typical of Chinese.

1) In Late T'ang and Early Sung (9th century to 1125) the inventory of initials was enlarged to 36 with labiodentals f 非, fh 敷, v 奉, labiofricative β 微, and palatals ŋ 娘, d̚ç 床, as tabulated in the foreword of *Yün-ching*.

For Old Chinese we may restore the following simple initial consonants:

p	(ph)	b	m		mh
t	(th)	d	n	l	lh
k	(kh)	g	(ŋ)		h    ħ
ts	(tsh)	dz			s    z

Probably voiceless aspirates ph, th, kh, tsh were still absent in Old Chinese to be developed later from p, lh, h, ts. The final -ŋ was an allophone of n, followed by a velar consonant. Initial ŋ- may have emerged only in Middle Chinese from g or ħ in an environment of i, ǎ, or nasal finals. Li Fang-kui (p. 21) suggests the restoration of initials /hm/, /hl/, /hng/, /hngw/ for Old Chinese as voiceless counterparts of /m/, /l/, /ng/, /ngw/. But in my opinion there were present only /mh/ and /lh/, which are evidenced by Indo-European stems corresponding to the Chinese words hai<sup>3</sup> 海 and ti<sup>3</sup> 體 (cf. p. 10, Nr. 748 and 667). Characteristic of Old Chinese consonantism is the absence of r- initial which changes mostly to l-, z-, d-, ħ-, whereas the laryngeals h- and ħ- suggest an intimate relationship to Germanic initial h-.

The existence of initial consonant clusters in Old Chinese is suggested by the fact that series of words whose sound is represented by the same graphic component occasionally have initials which differ from each other in points of articulation. In many cases, Indo-European words can throw light upon this enigma, since they preserved consonant clusters much better than Chinese. In this paper I confine myself to two examples:

The character for the word liu<sup>2</sup> 流 "river, to flow" has the sound grapheme 流, as in the word shu<sup>1</sup> 梳 "comb, to comb". The purely theoretical reconstruction of consonant cluster /sl-/ for this grapheme can now be evidenced by the corresponding Indo-European stem sreus = "river, to flow" (cf. above p. 22, Pokorny 1003).

Secondly, the Indo-European stem sm̄ik, Proto-German sm̄ah (Pokorny p. 966, Kluge p. 66a "schmach") with the meaning "small, little" can account for the alternative initials of s- and m- for a series of Chinese words with the graphemes 小 and 少 which also have the same basic meaning "small, little":

s- : 小 xiao<sup>3</sup>, 少 shao<sup>3,4</sup>  
 m- : 秒 miao<sup>3</sup>, 妙 miao<sup>4</sup>, 眇 miao<sup>3</sup>, 杪 miao<sup>3</sup>

Furthermore, the bisyllabic Chinese word 渺小 *miao<sup>3</sup>-xiao<sup>3</sup>* "tiny" can now be interpreted as a reduplication of the stem *smāh*, whereby the consonant cluster *sm-* is divided into simple initials *m-* and *s-* to be attached to each syllable. In this way many Chinese bisyllabic words can be etymologically explained by Indo-European stems with initial consonant clusters.

Our knowledge of regular phonetic correspondences between Old Chinese and Indo-European opens immense possibilities for lexical comparison. In the last four years I have traced out about 1500 cognate words which would constitute roughly two thirds of the basic vocabulary in Old Chinese. The common words are to be found in all spheres of life including kinship, animals, plants, hydrography, landscape, parts of the body, actions, emotional expressions, politics and religion, and even function words such as pronouns and prepositions, as partly shown in the lists of this paper.

Among Indo-European dialects, Germanic languages seems to have been mostly akin to Old Chinese in consideration of the following points:

- a. Among Indo-European dialects, Germanic preserved the largest number of cognate words also to be found in Chinese.
- b. Germanic and Chinese belong to the group of so-called *centum* languages, in which all Proto-Indo-European velars remain velars (with only a few exceptional variants in Chinese, cf. p. 18, 449; p. 18, 449; p. 20, 644).
- c. The initial /h/ in Germanic corresponds mostly to /h/ and /h/ in Old Chinese. Though Germanic /h/ has hitherto<sub>been</sub> interpreted as a shift from Indo-European /k/, it must have existed already in Proto-Indo-European, since interrogatives both in Germanic and Chinese have laryngeal initials (cf. p. 6, 645; p. 20, 644, 647, 648).
- d. In comparison with Sanskrit, Greek and Latin, Chinese and northern Germanic languages are poor in grammatical categories such as case, gender, number, tense, mood etc. I would surmise generally that the daily speech of Germanic Peoples might have had a much simpler grammar than that suggested by the earliest Germanic literature which consists without exceptions of biblical translations from Greek or Latin. German proverbs and idioms are formulated without indications of case, gender and number, like

"mit Kind und Kegel", "schwarz auf weiß", "alt und jung". Moreover, when the Franks settled in France as conquerors, the complex declination system of Vulgar Latin collapsed and Old French emerged without case and number. This historical fact may suggest that the Germans originally spoke a language without declinations.

With Old Chinese as evidence, we may conclude that the *Germanic* group of Indo-European was conservative in its phonetical and grammatical developments because of its peripheral northern location, far from the early high civilizations in the Near East where Hamitic and Semitic were spoken. On the other hand, the complicated conjugation system in Greek, Latin and Southern Germanic might have emerged later under the influence of a rich modal and temporal system of Altaic tribes, with whom Indo-Europeans had coexisted for thousands of years in Central Asia and in whose company they emigrated into Europe.

Chinese is grammatically quite different from its neighbouring languages of agglutinative type, such as Mongolian, Manchu, Turkish, Korean and Japanese, and has almost no basic words in common with them, whereas numerous borrowings from Chinese in these languages are well identifiable. As to the relationship of Chinese to Tibetan, this is a dead-end branch of comparative linguistics where some "Sino-Tibetanists" have devoted their whole life in vain attempts to prove the prevailing hypothesis of a Sino-Tibetan language family. Recently, Colbin (1986) published a list in which he has collocated 489 Sino-Tibetan roots mainly suggested by Paul K. Benedict, Nicholas C. Bodman, Axel Schüssler and others (see Introduction p. 8). Unfortunately, "Sino-Tibetanists" allow themselves too great freedom when doing phonetic and semantic comparison. Moreover, a large number of words are claimed to be common Sino-Tibetan, though they are not to be found in Tibetan vocabulary at all (for instance the word cow, cf. Coblin p. 52, cattle/ox). Thus only about a third of the words listed by Coblin may be accepted as common Sino-Tibetan. It is unlikely that there had ever existed a "Sino-Tibetan" as a common mother language of Chinese and Tibetan, since:

- a. Tibetan is syntactically an agglutinative language like Mongolian and Japanese. It uses case suffixes and has neither prepositions nor conjunctions at the head of sentences as is the case in Chinese and in Indo-European.

- b. Though Tibetan word stems are mostly monosyllabic as in Chinese and Indo-European, they are rich in initial consonant clusters like Polish and poor in vowel clusters as opposite to those of Middle Chinese and Germanic. Among the words common for Chinese and Tibetan, there are many Indo-European stems. In comparison with Old Chinese, however, the Tibetan words are lacking final stops and therefore rather akin to those of Tocharian. As Tibet is located in the neighbourhood of Southern Sinkiang, it is rather possible that these words originated from there.
- c. It is not deniable that there is a small stock of Sino-Tibetan common vocabulary which is absent in Indo-European. But we must investigate whether such Tibetan words are borrowings from Burmese or from Old Chinese.
- d. In the T'ang period, when China and Tibet established the first diplomatic relations, nobody ever noticed any common vocabulary or grammar of the two languages.

In the final analysis, I would surmise that Tibetan may have emerged as a mixed language with an aboriginal and Proto-Indo-European substratum and an Altaic superstratum.

The adjacent languages in the south, such as Thai, Vietnamese, Miao and so on, have similar phonetical features and an equally simple grammar like Chinese. However, direct oral communication with these tribes seems to never have been possible from the very beginning of Chinese history, certainly because of great differences in daily vocabulary as existing at the present time. Ms. Manomaivibool (1975), by well-founded phonetic comparisons, identified 621 Thai words as related to Chinese. But this Sino-Thai common vocabulary, too, bristles with Indo-European stems. In my opinion these southern tribes were once the aborigines of Northern China, and immigrated to the south because they were not willing to become subjects of the Chinese Empire established by Indo-European conquerors. Nevertheless, they could not escape since then the influence of Chinese languages and civilization. Thus, in many cases it will be difficult to ascertain whether a Thai word is of Sino-Thai common origin, or a late borrowing from Chinese.

Considering all these linguistic facts, the thesis presents itself that Old Chinese emerged as a mixed language, though spoken with Proto-Chinese native tongue, using mainly the Proto-Indo-European idiom which seems to have stretched from Mongolia to Europe during the third millennium B.C. in the northern part of the temperate zone.

Historically the emergence of Old Chinese should be connected with the founding of the Chinese Empire by Huang-ti 黃帝, the Yellow Emperor, with whom the Chinese still identify themselves today. According to Chinese historiography, he was the founder of the first state of China as well as its high civilization. The *Shih-chi* (*Records of the Grand Historian*) informs us in its first chapter that towards the end of the rule of the clan of Shen-nung 神農 (Divine Farmer), Northern China was ravaged by war. Huang-ti defeated Yen-ti 炎帝 (God of Flame Clearing) and Ch'ih-yu 蚩尤 (Great Fool), thus becoming emperor of China. It is noteworthy that the decisive battle took place in Chuo-lu 涿鹿 (Deer Ford), on the thoroughfare between the present Peking and Inner Mongolia. Huang-ti's name was Hsüan-yüan 軒轅 which means "wagon shaft". After his enthronement, he ordered roads to be built, and was perpetually on the move with treks of carriages. At night he slept in a barricade of wagons. He had no interest in walled towns, so only one city was built at the bow of Chuo-lu. All of this indicates his origin from a stock-breeding tribe in Inner Mongolia. With introduction of horse- or oxen-pulled wagons, transport and traffic in Northern China was revolutionized. Only on this new technical basis did the founding of a state with central government become feasible and functional. This emperor must have had an appearance of northern white people, as the epithet "Huang-ti" can etymologically be interpreted as "blond heavenly god" (cf. Word list p. 37).

Huang-ti is mentioned also as the founder of Chinese language in the *Li-chi* 禮記 (*Book of Rites*). In the Chapter 23 *Chi-fa* 祭法 (*Rules of Sacrifices*), which gives the reasons for worship of ancient sovereigns and heroes, we read: "Huang-ti gave hundreds of things their right names, in order to illumine the people about the common goods. And Chuan-hsü was able to carry on his work." 黃帝正名百物,以明民共財.顓頊能修之.

This points out the merit of Huang-ti for the standardization of Chinese language, which took a long time and was continued by his grandson and successor Chuan-hsü. The aboriginal people had thus to learn new foreign words from the emperors. Probably thereby the Proto-Indo-European vocabulary became dominant in Old Chinese.

The rule of Huang-ti is traditionally dated back to the 27th century B.C. Subtracting 200 or 300 years as hyperbolic predating, we may assume that the founding of the first Chinese empire took place at the latest at about 2400 B.C. This would coincide with the archaeological data of the beginning classical Lung-shan culture (2400-2000 B.C.) in the eastern valleys of Northern China, which is characterized by a great leap in stock-breeding. Not only pigs, poultry and dogs as in the preceding neolithic cultures, but also sheep, cattle and horses were domesticated. Above all, cattle and horses were important for their usage in transport service and warfare, and for improved protein supply for the warriors. The mixture of agriculture and stock-breeding thus laid a sound economic basis, on which a great empire could function and be maintained. The concentrated use of new economic resources through the state impelled in turn the further development of Chinese culture to become one of the leading civilizations in the ancient world.

My thesis takes for granted that the culture in the northern steppe was once superior to that of Northern China. It is conceivable that at the beginning of the third millennium B.C., Inner Mongolia (40-42°N) was warmer and damper than in later times and thus more fertile than Northern China (34-40° N) because of more sunshine hours in summer. The favourable climatic conditions there must have resulted in a richer economy and higher civilization than in the contemporaneous Northern China. This differential may be attested by recent archaeological findings. For instance, the lower stratum culture of Hsia-chia-tien 夏家店下層文化 in Ch'ih-feng 赤峰, dated 2410<sup>±</sup> 140 B.C., already had a high chalcolithic culture with domesticated sheep and cattle, as well as small-size bronze castings. Besides, its pottery had forms and decor, which seem to be the prototypes of Shang pottery and bronze (cf. Liu Kuan-min pp. 339 and colour plate IX).

## Word List: Huang-ti and Names of Animals

Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
564 konək  germ. huna(n)ga (Kluge 315 Honig)	golden (> honey, because of color) ai.kāncana-, gr.κνγκός, aisl.hunang, ags.hunig, ahd.honag, hoang, engl. honey, nhd.Honig	hoǎŋ  黃	hoǎŋ <sup>平</sup>  32 R I	xuaŋ <sup>2</sup>	xuaŋ <sup>2</sup>  huang <sup>2</sup>
185 de-uo ^	god of Heaven ai.dēvā-h "god", dēvi "goddess", lat.deus, divus, ags.Tig "Mars", ahd.Zio	deǎg  帝	tei去  13 IV	ti: <sup>4</sup>	ti: <sup>4</sup>  di <sup>4</sup>
700 mork	horse ir.marc, cymr.etc.march ahd.marah, ags.mearh, aisl.marr, nhd.Mähre	mog  馬	mea上  29 II	ma: <sup>3</sup>	ma: <sup>3</sup>  ma <sup>3</sup>
448 gheul	horse (ch.horse of 2 years) mhd.gul, nhd.Gaul ndl.guil	keu  胸	kjou <sup>平</sup>  12 III	keu <sup>1</sup>	tɕy: <sup>1</sup>  ju <sup>1</sup>
- per(e)d  (cf.Kluge p.543, Wadler p.363)	(Ch.horse for riding, perhaps a mule) nhd.Pferd "horse", lat.verēdus, ahd.pfärit, mhd.phärt, ags.perid hebr.pered "mule"	bəit  馬必	bəit  17 IV	pi: <sup>2</sup>	pi: <sup>4</sup>  bi <sup>4</sup>
482 g <sup>w</sup> ou	cow, nhd.Kuh, cf.p.18 ai.gáuh, gr.att.βούς, lat.bōs, ahd.chuo,	gou  牛	ŋju <sup>平</sup>  37 III	iu <sup>2</sup>	njou <sup>2</sup>  niu <sup>2</sup>
632 kuk	dog mpers.sak, npers.sag, toch. AB ku	kug  狗	kəu上  37 I	kəu <sup>3</sup>	kou <sup>3</sup>  gou <sup>3</sup>
632 kun-k	dog, nhd.Hund, hound gr.κύνν, κυνός, lat.canis, toch.A.Obl.kon 犬	huən(g)  犬	khuen上  24 RIV	khuen <sup>3</sup>	tɕhyan <sup>3</sup>  quan <sup>3</sup>
841 pork	pig, (pork) lat.porcus, ahd.far(a)h, ags.fearh	pog  豕	pea <sup>平</sup>  29 II	pa: <sup>1</sup>	pa: <sup>1</sup>  ba <sup>1</sup>
1038 su(o)	sow, nhd.Sau av.hū, gr.Ūs, ūós, lat.sus, suis, ahd.ags.sū, aisl.sŷr, toch. B suwo	to(g)	tjo <sup>平</sup>	tseu <sup>1</sup>	tɕu: <sup>1</sup>
1032 trog	lat.troia, air.torc, acorn.torch, bret.tourch	猪	11 III		zhu <sup>1</sup>



Pokorny page stem	meaning and word examples	Ach.	Mch.	Nch.	Ch.
1038 suwin	swine, nhd.Schwein got.swein, ags. ahd. swin	duən 豚	don <sup>平</sup> 18 RI	thun <sup>2</sup>	thun <sup>2</sup> tun <sup>2</sup>
1038 suk	swine, sow, nhd. Sau ags.sugu, as.suga, nhd.schwäbisch: suge	səg 豕	ɕjiə <sup>上</sup> 4III	ʃɛ: <sup>3</sup>	ɕi: <sup>3</sup> shi <sup>3</sup>
859 roik	roe ahd.rēh, ags.rāha, rāege nhd.Reh, Ricke	louk 鹿	luk 1 I	lu: <sup>4</sup>	lu: <sup>4</sup> lu <sup>4</sup>
409 ghaid	goat, nhd.Geiß got.gaits, ahd.geiz, ags.gāt, as.gēt	ka:t 羯	kjat 21 III	kie <sup>3</sup>	tɕie <sup>2</sup> jie <sup>2</sup>
517 kog	goat abg.koza "she-goat"; ags.hēcen, mnd.hōken, mndl.hoekijn "kid"	ko g 羖	kou <sup>上</sup> 12 RI	ku: <sup>3</sup>	ku: <sup>3</sup> gu <sup>3</sup>
384 grā	crow, nhd.Krähe ahd.krāja, krāwa, Krähe and.krā; ags.crāwa, crāwe, crā	ho: 鴉	?ea <sup>平</sup> 29 II	ea <sup>1</sup>	ja <sup>1</sup> ya <sup>1</sup>
383 grænug	crane, nhd.Kranig ahd.kranuh, ags.cranoc, mnd.kranek	hauk 鶴	hāk 31 I	xau <sup>2</sup> / xo: <sup>2</sup>	xau <sup>2</sup> he <sup>4</sup>
412 ghans	goose, cf.p.12	gans 雁	ŋean	ean <sup>4</sup>	jen <sup>4</sup>
991 sparg	sparrow, nhd.sperling ahd.sperk, sperch, spirch gr.personal name = ΣΠΟΡΥΙΛΟΣ "sperling"	sāk 雀	tsiāk 31 IV	tshjau <sup>3</sup>	tɕhja <sup>3</sup> qiao <sup>3</sup> / que
416 ghdu ghiu	fish, to fish gr. ἰχθύς, lit.zuvis, lett. zivs zivs	glo/gio 魚	ŋjo <sup>平</sup> 11 III	eu <sup>2</sup>	y: <sup>2</sup> yü <sup>2</sup>
531 kark	crayfish, crab ai.karka-h, lat.cancer, norw.roeke, aksl.rak <sub>p</sub>	hog 蟹	hēāj <sup>上</sup> 15 II	xeāj <sup>4</sup>	ɕje <sup>4</sup> xie <sup>4</sup>
752 mun	gnat, mosquito, arm.mun	muon 蚊	muon <sup>平</sup> 20 RIII	wun <sup>2</sup>	wun <sup>2</sup> wen <sup>2</sup>
608 sknid	louse (nhd.Laus) gr. Κονίς, mir. sned ags.hnitu, ahd.(h)niz, nhd.Nisse	sit 虱虱	seāt 17 II	ʃɛ: <sup>3</sup>	ɕɛ: <sup>1</sup> shi <sup>1</sup>
136 bhera	bear, nhd. Bär, cf.p.17	peia 熊	pjiə <sup>平</sup>	phi: <sup>2</sup>	phi: <sup>2</sup>

The Shang Dynasty too bears strong characteristic features of stock-breeding nobility (cf. Chang 1970, pp.79 and p.266 footnote). Since the language reflected in its oracular inscriptions did not differ from that of classical literature of the first millennium B.C., we may state that the dominance of Indo-European vocabulary in Chinese was already consolidated in the second half of the second millennium B.C.

Probably since the middle of the third millennium B.C., unfavorable climatic changes took place in Northern Eurasia and caused perpetual waves of southward emigration of stock-farmers. Parallel to the emergence of the Chinese Empire and the Chinese language in East Asia, there were also invasions of Indo-European warriors to the Aegean and Adriatic area, to Syro-Palestina and even to Egypt around 2500-2200 B.C. (cf. Gimbutas 1970, pp. 191).

I am writing an extensive work in German on the history of Chinese language and its relationship to Proto-Indo-European, and am also compiling a Sino-Indo-European Etymological Dictionary with more than 1500 entries. But this will take two or three more years for completion. So I accepted with great pleasure the kind invitation of Professor Victor H. Mair to publish this paper in English as a preliminary report for Sinological and linguistic colleagues. I should like to thank him for all of his editorial efforts and also for stylistic revisions, which are indispensable, since I am not a native speaker of English. Needless to say, I alone am responsible for the errors that may yet remain.

A b b r e v i a t i o n s (1)

These are in common use among German Indo-Europeanists and taken from the *Indogermanisches Etymologisches Wörterbuch* by Pokorny and the *Etymologisches Wörterbuch der Deutschen Sprache* by Kluge. Abbreviations for Chinese languages are of my own creation.

<u>Abbr.</u>	<u>German</u>	<u>English</u>
a-	alt-	old
abg.	altbulgarisch	Old Bulgarian (9-12th century)
ach.	altchinesisch	Old Chinese (1300 B.C.-316)
ae(ngl.).	altenglisch	Old English (700-1100)
afries.	altfriesisch	Old Friesian (till 1500)
afrz.	altfranzösisch	Old French (9-13th c.)
ags.	anglosächsisch	Anglo-Saxon (= Old English)
ahd.	althochdeutsch	Old High German (740-1100)
ai.	altindisch	Old Indic (Vedic and Sanskrit)
air.	altirisch	Old Irish
aisl.	altisländisch	Old Icelandic (9-16th c.)
aksl.	altkirchenslavisch	Old Church Slavic (9-12th c.)
an./ anord.	altnordisch	Old Nórdian (700-1530)
apr.	altpreußisch	Old Prussian (till 16th c.)
aruss.	altrussisch	Old Russian (11th c.)
as.	altsächsisch	Old Saxon (9-12th c.)
av.	avestisch	Avestan
bret.	bretonisch	Celtic of Basse Bretagne, France
ch.	chinesisch	Modern Mandarin (Peking 1913)
corn.	cornisch	Celtic of Cornwall
cymr.	kymrisch	Celtic of Wales
dän.	dänisch	Danish
engl.	englisch	English (since 1500)
frz.	französisch	French

Abbreviations (2)

got.	gotisch	Gothic (4th c.)
gr.	griechisch	Greek
att.	attisch	Attic
ion.	ionisch	Ionic
hebr.	hebräisch	Hebrew
hitt.	hettitisch	Hittite (2nd Millennium B.C.)
idg., IE	indogermanisch	Indo-European
ir.	irisch	Irish
ksl.	kirchenslavisch	Church Slavic
lat.	lateinisch	Latin
lett.	lettisch	Latvian (since 16th c.)
lit.	litauisch	Lithuanian (since 16th c.)
m-	mittel-	middle
mch.	mittelchinesisch	Middle Chinese (589-1126)
mengl.	mittelenglisch	Middle English (1100-1500)
mhd.	mittelhochdeutsch	Middle High German (1100-1350)
mir.	mittelirisch	Middle Irish
md.	mittelniederdeutsch	Middle Low German (13-16th c.)
mongl.	mongolisch	Mongolian
mpers.	mittelpersisch	Middle Persian (3rd c.B.C.)
n-	neu-	new
nch.	neuchinesisch	Early Mandarin (13th c.)
nd.	niederdeutsch	Low German
nhd.	neuhochdeutsch	New High German (1350- )
nir.	neuirisch	New Irish
nl.	niederländisch	Dutch

Abbreviations (3)

Pl.	Plural	plural
poln.	polnisch	Polish
Prät.	Präteritum	preterite (past tense)
russ.	russisch	Russian
schwed.	schwedisch	Swedish
sem.	semitisch	Semitic
serb.	serbisch	Serbian
skr.	sanskrit	Sanskrit (4th c. B.C.)
slav.	slavisch	Slavic
span.	spanisch	Spain

B i b l i o g r a p h y (1)

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## Rhyme Tables of Early Middle Chinese (600) according to Yün-ching 韻鏡

Grade	等	開 I	II	III	IV	合 R I	R II	R III	R IV	Total
Table	Rhyme	Simplex	e-	j-	i-, -i	o-	(e)u-	(j)u-	u-	
27/28R	ā 歌	ā 歌多	-	-	-	oā 戈果	-	juā 靴獨	-	3
29/30R	a 麻	-	ea 麻加	ja: 遮車	ia 邪耶	-	eua 瓜壘	-	-	4
4/5 R	iā 支	-	eiā 差柴	jiā 支紙	io 移斯	-	-	juā 吹為	uā 隨規	5
6/7 R	əi 脂	-	eəi 師	jəi 脂至	əi 私自	-	euəi 衰	juəi 誰水	uəi 惟季	6
8	" 之	-	" 史事	" 之止	" 子思	-	-	-	-	-
9/10R	i 微	-	-	ji 希衣	-	-	-	ui 微廢	-	2
13/14R	ai/ei	ai 咍代	eai 皆駭	jei 世例	ei 齊帝	oi 灰隊	euai 乖睽	juei 稅衛	uei 圭慧	8
15/16R	āj/ei	āj 泰害	eāj 佳卦	-	" 祭蔽	oāj 外最	euāj 蛙派	-	" 歲銳	4
25/26R	au/eu	au 豪刀	eau 肴效	jeu 少苗	ieu 蕭篠	-	-	-	ueu 小笑	5
37	u 流	əu 侯頭	eu 愁搜	ju 尤富	iu 幽幼	-	-	-	-	4
11	o 魚	-	eo 初所	jo 魚書	io 徐與	-	-	-	-	3
12/R	ou 模	-	eou 舅數	jou 虞遇	iou 須裕	ou 模暮	-	-	-	4
Open finals		5	9	9	8	4	4	5	4	48
1 東	uŋ	uŋ 東送	eŋ 崇	juŋ 弓風	iuŋ 嵩融	-	-	-	-	4
	uk	uk 屋木	euk 縮	juk 竹福	iuk 育肅	-	-	-	-	4
2/R 冬	ouŋ	-	-	jouŋ 鍾封	iouŋ 松用	ouŋ 冬宗	-	-	-	3
	ouk	-	eouk 侷	jouk 燭曲	iouk 足促	ouk 沃僕	-	-	-	4
3/R 江	āŋ	-	eāŋ 江邦	-	-	-	euāŋ 雙	-	-	2
	āk	-	eāk 增利	-	-	-	euāk 濁	-	-	2
31/32R 宕	āŋ	āŋ 唐宕	" 莊床	jāŋ 長方	iāŋ 陽相	oāŋ 光黃	-	uāŋ 王狂	-	5
	āk	āk 鐸各	" 斲	jāk 縛脚	iāk 爵藥	oāk 郭廓	-	uāk 攪	-	5
33/34R 梗	aŋ	-	eaŋ 庚生	jaŋ 英明	iaŋ 清盈	-	uaŋ 橫觥	juāŋ 兄永	uiaŋ 傾	6
	ak	-	eak 陌客	jak 逆隙	iak 昔益	-	uak 號耆	juak 獲	uiak 役	6
	" /eŋ	-	" 耕爭	" 成整	ieŋ 青庭	-	" 宏韓	-	ueŋ 熒	2
35/36R	" /ek	-	" 麥責	" 石尺	iek 錫的	-	" 副擱	-	uek 殛	2
42/43R 曾	əŋ	əŋ 登朋	-	jəŋ 冰蒸	iəŋ 敵	oəŋ 肱弘	-	-	-	4
	ək	ək 德北	eək 色	jək 職逼	iək 息弋	oək 國或	-	uək 域	-	6
17/18R 臻	ən	ən 痕恩	eən 臻	jən 真人	iən 津辛	on 魂村	-	juən 諄	uən 均遵	7
	ət	ət 泰迥	eət 櫛	jət 質實	iət 吉七	ot 沒骨	euət 率	juət 術	uet 聿恤	8
19/20R	on	-	-	jon 欣殷	-	-	-	uon 文君	-	2
	ot	-	-	jot 迄	-	-	-	uot 物佛	-	2
21/22R 山	an/en	-	ean 山間	jan 言軒	ien 仙綿	-	euān 桎頑	uan 元反	uen 全沿	6
	at/et	-	eat 銜剝	jat 揭歇	iet 薛列	-	euat 刷刷	uat 月伐	uet 雪悅	6
23/24R	an/en	ān 寒安	" 刪顏	jen 然連	" 先天	oan 官桓	" 還踰	juen 專員	" 玄淵	4
	at/et	āt 曷達	" 黠殺	jet 哲舌	" 肩結	oat 末括	" 滑出	juet 拙劣	" 血穴	4
38 深	um	-	eum 森	jum 金深	ium 侵尋	-	-	-	-	3
	up	-	eup 濕	jup 及十	iup 緝習	-	-	-	-	3
39 咸	ām/em	ām 覃南	eām 咸蟬	jam 兼炎	iem 添尖	-	-	-	-	4
	ap/ep	āp 合雜	eap 洽夾	jap 涉攝	iep 帖協	-	-	-	-	4
40/41R	om/am	om 談甘	eom 銜監	jom 嚴業	iam 鹽葉	-	-	uom 凡欠	-	5
	op/ap	op 盍臘	eop 押甲	jop 業	iap 葉	-	-	uop 乏法	-	5
Close finals		14	18	24	22	10	7	15	8	118

Rhymes of Early Mandarin (Nch. 1300)

reconstructed according to the *Chung-yüan-yin-yün* (1324)and the phonetical transcription in the *Meng-ku-tzu-yün* (1308)

Rhyme group		Simplex	with medial			to- tal	
Nr.	Name		e-	i-, j-	u-		
12	歌戈	o:	o: 歌合葛 147	-	jo 岳略 149	uo 戈脫 150	3
13	家麻	a:	a: 麻拔納 153	ea 家甲 156	-	ua 瓜滑 159	3
14	車遮	e:	-	-	je 車遮葉 161	ue 靴月劣 164	2
3	支思	ɛ:	ɛ: 支脂之師 88	-	-	-	1
4	齊微	i:	i: 齊微力集 92	-	-	-	1
"	"	əi	əi 德黑 99	-	-	uəi 為國 100	2
6	皆來	aj	aj 來麥色 113	eaj 皆格 116	-	uaj 乖劃 118	3
11	蕭豪	au	au 豪鐸 136	eau 肴效覺 140	jau 蕭爵 143	uau 郭朔 137	4
16	尤侯	əu	əu 候勾愁 172	-	iu 尤燭 174	-	2
5	魚模	u:	u: 模屋沃 103	eu 魚虞入 108	-	-	3
open syllabic		9	4	4	6	23	
1	東鍾	uŋ	uŋ 東冬鍾中 77	eun 嵩松永 80	-	-	2
2	江陽	aŋ	aŋ 宕長方邦 82	eaŋ 江陽 84	-	uaŋ 莊黃王 86	3
15	庚青	əŋ	əŋ 曾生爭 166	-	iəŋ 庚青 167	uəŋ 橫宏盲 170	3
"	"	eŋ	-	-	ieŋ 兄 171	ueŋ 肩頃 171	2
7	真	ən	ən 痕臻 120	-	in 真欣 121	-	2
"	文	un	un 魂文 123	eun 諄君 124	-	-	2
8	寒山	an	an 寒山凡 126	ean 間顏 128	-	uan 頑闕 129	3
9	桓歡	on	on 官桓盤 130	-	-	-	1
10	先天	en	-	-	ien 先言 132	uen 元專 134	2
17	侵尋	əm	əm 森岑 178	-	im 侵金 179	-	2
18	監咸	am	am 覃談 181	eam 咸銜 183	-	-	2
19	廉纖	em	-	-	iem 鹽嚴 185	-	1
with nasal final		9	5	6	5	25	

*Italic numerals refer to Yang Nai-szu 1981*

I n d e x o f W o r d E x a m p l e s

The first number refers to the page in this paper, the second to that in Pokorny.

E n g l i s h I n d e x

air, wether	13,488	cot, hole	5,393 586
also, again, and	16,74	court (of justice)	23,1067
arrowhead	7,1117	cow	18,482
awake	16,1117	crane	38,383
backbone, ridge	11,938	crayfish, crab	38,531
to bake	24,113	crow	38,384
to bask in the sun	5,113	day	16,240
to be, real, true	23,341	to defy	12,207
bear	17,136	to defame	20,734
belly	5,100	deposit	18,447
to bend a bow	23,1067	to die, death	6,735
betwixt, between	12,231	dog, hound	37,632
to boast	18,413	door	17,278
body, corpse	10,667	dreary, sorrow	23,1072
to boil	12,145	dregs	11,251 1032
bone, rib	5,616	to drown	6,762
book, to book	9,107	to dwindle	15,1047
bowl, cup	17,121 804	end	17,639 355
breast	12,171 837	to fall	13,516
bright, shining	10,597	fart	14,819 829
to burst	12,169	fell, skin	21,803
to call, cry	18,413 535	few	6,843
camp	10,659	fish	38,416
can	10,522	flag, cloth	21,788
to carve	12,392 405	to float	21,835
castle	9,141	float	6,837 21,837
cheek	5,382	to flow, river	22,1003
to clasp	5,359	to fly	21,801 817
clew, ball	18,361	folk	11,799
to conduct, lead	16,200		
contented with	23,1147		
to cook	24,798		

fraud, vagabund	20,731	idle	9,227
fright	14,820	impudent	11,845
to gather	10,658	inclined	7,935
to give, donation	5,408	industrious, to strive	19,564
glance, to glance	9,213	to insist	5,117
glimt, to glimt	13,431	king	23, -
to go up	7,1017	to knead	5,371
goat	38,409	lazy, late	13,666
	517	lea, open field	10,688
god of heaven	37,185	leaf	6,690
golden	37,564	leak	16,657
gnat, mosquito	38,752	little	6,657
goose	12,412		31,966
guilt	22,927	to loan, bestow, grant	16,669
hair	19,583	long	17,197
hale, whole	19,520	louse	38,608
hames	19,555	maid	13,696
hap, happen	5,610	mast, to fatten	6,694
help, to help	5,554	membrane	21,803
herd, heritage	13,579	milk, curd	5,400
to hew	19,535	mill, to grind	20,716
high	24,589	to mix, to blend	19,582
hill	19,544	nasty	13,445
	24,589	to hurse, cultivate	21,844
hollow	19,537	old, former	22,907
	593	on	17,39
holm, rock	19,544	outside	13,453
hook	25,537	pack, to pack	24,100
horse	10,700	pig, pork	37,841
	37,448	plow, flexed stick	24,523
	37, -	plum, sloe	11,965
to hum	19,556	to point	9,188
hunger	19,565	to pour	18,447
how? why?	20,648		

to praise	18,530	son	22,913
preposition (at, to)	20,772	sorrow	23,1072
price, to be work	13,436	sour, salted	23,1039
quick	15,1048	sound	15,1048
to reach	14,892	sow	37,1038 1032
reign	15,1112	sparrow	38,991
to remain	25,669	to split	12,155
to reside	23,1147	to squat	24,589
ridge, shore	13,526	to stear	22,1009
right	6,856	string	22,1036
roe	38,859	strong	23,1037
to rush at, start	7,1024	to sweep, broom	15,1049
sap, soup	7,880 913	swine	38,1038
scathe	14,950	sword	15,1050
to scoop	7,931	to take	7,183 1058
sea, lake	10,748	thatch, roof, house	7,1013
search, to seek	6,877	to tempt	10,687
seat	14,886	toe	9,188
self	14,884	town (-ton)	17,263
to send	14,908	trail, way	9,257
severe	23,1037	tree, wood	17,214
to sew, repair	22,915	tricky, to betray	16,276
shall	22,927	through	16,1076
ship, rudder	7,922	to turn	17,355 639
shit, to shit	7,921	to turn sour	13,627
shoe	22,951	voice, song	21,907
sight, to see	11,898	want, wish	15,1147
since	14,891	watershed, district	18,449
to sing, song	18,355	what?	6,645 20,644
sleep	15,656 1048	where?	20,644 647
slit	14,926	who?	20,644
to slit	6,859 926	witch	20,736
to slip into	7,963	was (having been)	23,1171
sister of husband	18,367		
so, as, if	21,884		



## P i n y i n I n d e x

an <sup>1</sup> 安	23,1147	fu <sup>2</sup> 桴	21,837	ji <sup>2</sup> 楫	7,922
an <sup>4</sup> 岸	13,526	fu <sup>4</sup> 腹	5,100	ji <sup>4</sup> 際	12,231
ba <sup>1</sup> 把	37,841			jia <sup>1</sup> 夾	5,359
bao <sup>1</sup> 包	24,100	gao <sup>1</sup> 高	24,589	jia <sup>2</sup> 頰	5,382
bao <sup>2</sup> 薄	6,843	gao <sup>1</sup> 皋 <small>自半</small>	18,449	jia <sup>4</sup> 價	13,436
bao <sup>3</sup> 堡	9,141	gao <sup>3</sup> 杲	10,597	jiao <sup>1</sup> 澆	18,447
bei <sup>1</sup> 杯	17,121 804	ge <sup>1</sup> 歌	18,355 530	jiao <sup>3</sup> 皎	10,597
bi <sup>3</sup> 鄙	11,845	gei <sup>3</sup> 給	5,408	jie <sup>2</sup> 羯	38,409
bi <sup>4</sup> 必	5,117	gou <sup>1</sup> 鈎	25,537	jin <sup>4</sup> 進	14,908
bi <sup>4</sup> 駢	37, -	gou <sup>3</sup> 狗	37,632	ju <sup>1</sup> 蒞	23,1039
bu <sup>4</sup> 簿	9,107	gu <sup>1</sup> 辜	22,927	ju <sup>1</sup> 居	24,589
bu <sup>4</sup> 部	11,799	gu <sup>1</sup> 姑	18,367	ju <sup>1</sup> 駒	37,448
can <sup>4</sup> 燦	13,431	gu <sup>3</sup> 骨	5,616	jun <sup>4</sup> 俊 駿	15,1048
cao <sup>1</sup> 操	22,1009	gu <sup>3</sup> 殺 韜	38,517	ke <sup>1</sup> 柯	24,523
ce <sup>4</sup> 側	7,935	gui <sup>1</sup> 歸	17,355 639	ke <sup>3</sup> 可	10,522
chang <sup>2</sup> 長	17,197	hai <sup>3</sup> 海	10,748	ku <sup>1</sup> 窟	5,393 586
chou <sup>4</sup> 愁	23,1072	hai <sup>4</sup> 害	14,950		
cun <sup>1</sup> 村	17,263	hao <sup>2</sup> 豪	18,413	lai <sup>4</sup> 賴	13,666
dai <sup>4</sup> 怠	9,227	hao <sup>2</sup> 號 <small>自半</small>	18,413 535	lai <sup>4</sup> 賚	16,669
dao <sup>4</sup> 道	9,257	hao <sup>2</sup> 毫	19,583	lan <sup>4</sup> 爛	13,431
dao <sup>4</sup> 導	16,220	hao <sup>4</sup> 皓	10,597	lao <sup>4</sup> 酪	5,400
de <sup>2</sup> 得	7,183 1058	he <sup>2</sup> 合	5,610	lei <sup>3</sup> 累 隼	10,658
di <sup>4</sup> 帝	37,185	he <sup>2</sup> 和	19,582	lei <sup>3</sup> 壘	10,659
dou <sup>4</sup> 鬥	12,207	he <sup>2</sup> 何	20,644	li <sup>3</sup> 李	11,965
du <sup>1</sup> 闔 都	17,278	he <sup>2</sup> 曷	6,645	lie <sup>4</sup> 劣	6,684
du <sup>3</sup> 覩	9,213	he <sup>4</sup> 鶴	38,383	lie <sup>4</sup> 裂	6,859 926
fa <sup>2</sup> 筏	6,837	hu <sup>2</sup> 胡	20,648	liu <sup>2</sup> 流	22,1003
fan <sup>1</sup> 旛 幡	21,788	huai <sup>4</sup> 壞	13,445 516 627	liu <sup>2</sup> 留	25,669
fei <sup>1</sup> 飛	21,801 817	huang <sup>1</sup> 荒	19,565	lou <sup>4</sup> 漏	16,657
fei <sup>4</sup> 沸	12,145	huang <sup>2</sup> 黃	37,564	lu <sup>4</sup> 鹿	38,859
fei <sup>4</sup> 肺	12,171 837	hui <sup>1</sup> 恢	19,520	lü <sup>3</sup> 膺	11,938
fei <sup>4</sup> 纘	14,819	hui <sup>2</sup> 回	17,639 1140	ma <sup>3</sup> 馬	10,700
fu <sup>1</sup> 膚	21,803	hui <sup>4</sup> 慧	15,1049	mang <sup>2</sup> 氓	20,731
fu <sup>2</sup> 浮	21,835	ji <sup>2</sup> 汲	7,931	mei <sup>4</sup> 妹	13,696
				miao <sup>3</sup> 秒 眇 渺 杪	31,966
				miao <sup>4</sup> 妙	31,966
				mo <sup>2</sup> 磨	20,716

mo <sup>4</sup> 秣	6,694	shui <sup>2</sup> 誰	20,644	ya <sup>1</sup> 鴉	38,384
mo <sup>4</sup> 殍	6,735	shui <sup>4</sup> 睡	15,656 1048	yan <sup>2</sup> 沿	17,39
ni <sup>4</sup> 溺	6,762	sui <sup>4</sup> 歲	15,1050	yan <sup>2</sup> 巖	19,544
nie <sup>4</sup> 捏	5,371	sun <sup>1</sup> 孫	22,913	yan <sup>4</sup> 雁	12,412
niu <sup>2</sup> 牛	18,482	suo <sup>3</sup> 索	6,877	yao <sup>2</sup> 堯	18,447
pa <sup>4</sup> 怕	14,820	ti <sup>3</sup> 體	10,667	ye <sup>3</sup> 野	10,688
pao <sup>2</sup> 炮魚	24,113	ting <sup>1</sup> 廳	23,1067	ye <sup>4</sup> 葉	6,690
pao <sup>2</sup> 庖	24,798	ting <sup>2</sup> 庭	23,1067	yi <sup>2</sup> 宜	22,927
pei <sup>2</sup> 培	21,844	tou <sup>4</sup> 透	16,1076	yin <sup>2</sup> 吟	19,556
pi <sup>2</sup> 罷	17,136	tu <sup>1</sup> 突	7,1024	you <sup>4</sup> 誘	10,687
pi <sup>2</sup> 皮	21,803	tun <sup>2</sup> 屯	17,263	you <sup>4</sup> 又	16,74
pi <sup>4</sup> 屁	14,819 829	tun <sup>2</sup> 豚	38,1038	yü <sup>2</sup> 於	20,772
po <sup>4</sup> 破	12,155 169	wai <sup>4</sup> 外	13,453	yü <sup>2</sup> 魚	38,416
pu <sup>4</sup> 曝	5,113	wang <sup>2</sup> 王	23, -	yüan <sup>4</sup> 願	15,1147
qi <sup>4</sup> 契	12,392 405	wei <sup>2</sup> 爲	23,1171	zha <sup>4</sup> 詐	16,276
qi <sup>4</sup> 氣	13,488	wei <sup>4</sup> 位	15,1112	zhai <sup>2</sup> 宅	7,1013
qian <sup>2</sup> 前	22,907	wen <sup>2</sup> 蚊	37,752	zhang <sup>1</sup> 張	23,1067
quiao <sup>1</sup> 敲	19,535	wu <sup>1</sup> 惡	20,647	zhen <sup>1</sup> 真	23,341
qiao <sup>3</sup> 雀	38,991	wu <sup>2</sup> 巫	20,736	zhi <sup>1</sup> 汁	7,880 913
qin <sup>2</sup> 勤	19,564	wu <sup>2</sup> 誣	20,734	zhi <sup>3</sup> 指	9,188
qiu <sup>1</sup> 丘	19,544	wu <sup>4</sup> 寤悟	16,1117	zhi <sup>3</sup> 趾	9,188
qiu <sup>2</sup> 球綵	18,361	xi <sup>1</sup> 奚	20,644	zhi <sup>4</sup> 至	14,892
quan <sup>3</sup> 犬	37,632	xi <sup>2</sup> 襲	7,963	zhi <sup>4</sup> 陟	7,1017
rao <sup>2</sup> 橈	20,755	xi <sup>4</sup> 系	13,579	zhou <sup>1</sup> 洲	18,449
ru <sup>2</sup> 如	21,884	xian <sup>1</sup> 先	22,907	zhou <sup>4</sup> 晝	16,240
shao <sup>3</sup> 少	31,966	xian <sup>2</sup> 銜	19,555	zhu <sup>1</sup> 豬	37,1038 1032
sheng <sup>1</sup> 聲	21,907	xiao <sup>3</sup> 小	31,966	zhuang <sup>1</sup> 莊	23,1037
sheng <sup>2</sup> 繩	22,1036	xie <sup>2</sup> 協	5,554	zhuang <sup>4</sup> 壯	23,1037
shi <sup>1</sup> 虱虱	38,608	xie <sup>4</sup> 蟹	38,531	zi <sup>3</sup> 滓	11,251 1032
shi <sup>2</sup> 寔	6,856	xie <sup>4</sup> 泄	7,921	zi <sup>4</sup> 自	14,884 891
shi <sup>3</sup> 豕	38,1038	xiu <sup>1</sup> 修	22,915	zi <sup>4</sup> 眚	14,926
shi <sup>4</sup> 視	11,898	xu <sup>1</sup> 虛	19,537 593	zu <sup>2</sup> 鍬	7,1032
		xu <sup>1</sup> 墟	24,589	zhu <sup>1</sup> 株	17,214
		xue <sup>1</sup> 靴	22,951	zuo <sup>4</sup> 座	14,886
		xun <sup>4</sup> 遜	15,1047		
		xun <sup>4</sup> 迅	15,1048		

Editor's Note: Tsung-tung Chang holds doctorate degrees in economics and in Sinology. He is the author of Der Kult der Shang-Dynastie im Spiegel der Orakelinschriften: Eine paläographische Studie zur Religion im archaischen China (Wiesbaden: Otto Harrassowitz, 1970) and Metaphysik, Erkenntnis und Praktische Philosophie im Chuang-Tzu: Zur Neu-Interpretation und systematischen Darstellung der klassischen chinesischen Philosophie (Frankfurt am Main: Vittorio Klostermann, 1982).

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