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The Need for an Alphabetically Arranged General Usage Dictionary of Mandarin Chinese:

A Review Article of Some Recent Dictionaries and Current Lexicographical Projects

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AS a working Sinologist, each time I look up a word in my *Webster's* or *Kenkyusha's* I experience a sharp pang of deprivation. Having slaved over Chinese dictionaries arranged in every imaginable order (by K'ang-hsi radical, left-top radical, bottom-right radical, left-right split, total stroke count, shape of successive strokes, four-corner, three-corner, two-corner, *kuei-hsieh*, *ts'ang-chieh*, telegraphic code, rhyme tables, "phonetic" keys, and so on *ad nauseam*), I have become deeply envious of specialists in those languages, such as Japanese, Indonesian, Hindi, Persian, Russian, Turkish, Korean, Vietnamese, and so forth, which possess alphabetically arranged dictionaries. Even Zulu, Swahili, Akkadian (Assyrian), and now Sumerian have alphabetically ordered dictionaries for the convenience of scholars in these areas of research.

It is a source of continual regret and embarrassment that, in general, my colleagues in Chinese studies consult their dictionaries far less frequently than do those in other fields of area studies. But this is really not due to any glaring fault of their own and, in fact, they deserve more sympathy than censure. The difficulties are so enormous that very few students of Chinese are willing to undertake integral translations of texts, preferring instead to summarize, paraphrase, excerpt and render into their own language those passages which are relatively transparent. Only individuals with exceptional determination, fortitude, and stamina are capable of returning again

and again to the search for highly elusive characters in a welter of unfriendly lexicons. This may be one reason why Western Sinology lags so far behind Indology (where is our Böthlingk and Roth or Monier-Williams?), Greek studies (where is our Liddell and Scott?), Latin studies (*Oxford Latin Dictionary*), Arabic studies (Lane's, disappointing in its arrangement by "roots" and its incompleteness but grand in its conception and scope), and other classical disciplines. Incredibly, many Chinese scholars with advanced degrees do not even know how to locate items in supposedly standard reference works or do so only with the greatest reluctance and deliberation. For those who do make the effort, the number of hours wasted in looking up words in Chinese dictionaries and other reference tools is absolutely staggering. What is most depressing about this profligacy, however, is that it is completely unnecessary. I propose, in this article, to show why.

First, a few definitions are required. What do I mean by an "alphabetically arranged dictionary"? I refer to a dictionary in which all words (*tz'u*) are interfiled strictly according to pronunciation. This may be referred to as a "single sort/tier/layer alphabetical" order or series. I most emphatically do not mean a dictionary arranged according to the sounds of initial single graphs (*tzu*), i.e. only the beginning syllables of whole words. With the latter type of arrangement, more than one sort is required to locate a given term. The head character must first be found and then a separate sort is required for the next character, and so on. Modern Chinese languages and dialects are as polysyllabic as the vast majority of other languages spoken in the world today (De Francis, 1984). In my estimation, there is no reason to go on treating them as variants of classical Chinese, which is an entirely different type of language. Having dabbled in all of them, I believe that the difference between classical Chinese and modern Chinese languages is at least as great as that between Latin and Italian, between classical Greek and modern Greek or between Sanskrit and Hindi. Yet no one confuses Italian with Latin, modern Greek with classical Greek, or Sanskrit with Hindi. As a matter of fact there are even several varieties of premodern Chinese just as with Greek (Homeric, Horatian, Demotic,

Koine), Sanskrit (Vedic, Prakritic, Buddhist Hybrid), and Latin (Ciceronian, Low, Ecclesiastical, Medieval, New, etc.). If we can agree that there are fundamental structural differences between modern Chinese languages and classical Chinese, perhaps we can see the need for devising appropriately dissimilar dictionaries for their study.

One of the most salient distinctions between classical Chinese and Mandarin is the high degree of polysyllabicity of the latter vis-à-vis the former. There was indeed a certain percentage of truly polysyllabic words in classical Chinese, but these were largely loanwords from foreign languages, onomatopoeic borrowings from the spoken language, and dialectical expressions of restricted currency. Conversely, if one were to compile a list of the 60,000 most commonly used words and expressions in Mandarin, one would discover that more than 92% of these are polysyllabic. Given this configuration, it seems odd, if not perverse, that Chinese lexicographers should continue to insist on ordering their general purpose dictionaries according to the sounds or shapes of the first syllables of words alone.

Even in classical Chinese, the vast majority of lexical items that need to be looked up consist of more than one character. The number of entries in multiple character phrase books (e.g., *P'ien-tzu lei-pien* [approximately 110,000 entries in 240 *chüan*], *P'ei-wen yün-fu* [roughly 560,000 items in 212 *chüan*]) far exceeds those in the largest single character dictionaries (e.g., *Chung-hua ta tzu-tien* [48,000 graphs in four volumes], *K'ang-hsi tzu-tien* [49,030 graphs]). While syntactically and grammatically many of these multisyllabic entries may not be considered as discrete (i.e. bound) units, they still readily lend themselves to the principle of single-sort alphabetical searches. Furthermore, a large proportion of graphs in the exhaustive single character dictionaries were only used once in history or are variants and miswritten forms. Many of them are unpronounceable and the meanings of others are impossible to determine. In short, most of the graphs in such dictionaries are obscure and arcane. Well over two-thirds of the graphs in these comprehensive single character dictionaries would never be encountered *in the entire*

lifetime of even the most assiduous Sinologist (unless, of course, he himself were a lexicographer). This is not to say that large single character dictionaries are unnecessary as a matter of record. It is, rather, only to point out that what bulk they do have is tremendously deceptive in terms of frequency of usage.

Just to give one example, only 622 characters account for 90% of the total running text of Lao She's *Rickshaw Boy (Lo-t'o hsiang-tzu)* and 1681 graphs account for 99%. Altogether there are a total of 107,360 characters in *Rickshaw Boy* but only 2,413 different graphs. Compare this with the 660,273 total characters in the four volumes of *Mao Tse-tung's Selected Works* which are composed of only 2,981 different graphs. The figure is actually not much different for the bulk of classical Chinese writings (Brooks). In 700 of the best-known T'ang poems, a considerable number by a variety of poets, there are no more than 3,856 different graphs (based on Stimson). It is generally acknowledged that a passive command of about 5,500 characters is sufficient for reading the overwhelming majority of literary texts. Five to six thousand distinct graphs are certainly quite enough for anyone to cope with, but they are a far cry from fifty to sixty thousand.

Functional literacy (the ability to read newspapers, letters, signs, and so forth) in today's world requires that an individual command a knowledge of no more than 1,500-2,000 graphs (cf. Ho, p. 33). Not surprisingly, this figure is approximately the same as the amount of *jōyō* or *tōyō kanji* (characters approved for common use by the Japanese Ministry of Education). It would appear that the mind of the common man rebels at the memorizaton of larger numbers of graphs. Two or three years out of high school, most Japanese — including those who go on to college — can only reproduce about 500–700 graphs. This number goes down in successive years as they increasingly resort to *kana* or *romaji* to express themselves. Even the most highly literate Chinese scholars can almost never recognize more than 10,000 characters and the person who can accurately produce as many as 5,000 is exceedingly rare. It is a simple fact that the written vocabulary of modern Chinese texts consists largely of words that can be written down using no more than 3,500 different

characters.

By contrast to the exhaustive single character dictionaries mentioned above, there exist large dictionaries consisting wholly of common binomial expressions (e.g. *Lien-mien tzu-tien* [about 22,400 entries in six volumes] and *Tz'u-t'ung* [around 55,000 entries in two thick tomes]). The arrangement of the latter is both curious and significant. The same binome is printed in as many as half-a-dozen or more different combinations of characters that have been used throughout history to write it out. This indicates powerfully the primacy of sound over written form as the ultimate determinant of Chinese language. The great late-Ch'ing early-Republican scholar, Wang Kuo-wei (1877-1927), perceptively noted that these binomes are, in fact, dissyllabic words and that they should be grouped primarily on the basis of sound (in his article entitled "Studies on Binomes in Ancient Literature [Ku wen-hsüeh chung lien-mien-tzu chih yen-chiu]," cited in Hu Shih's preface to *Tz'u-t'ung*, p. 9). Confirmation of this view may be found in the fact that a large number of Chinese characters exist only as syllables of polynomes (e.g. *chieh-chüeh* ["wiggler"], *p'ing-p'ang* ["ping-pong"], *po-li* and *liu-li* ["glass"], *hu-tieh* ["butterfly"], *k'uei-lei* ["puppet"], *chi-teng-ka-teng* ["faithful", "constant"], etc.).

An examination of the largest dictionaries ever conceived for Chinese languages, the *Chung-shan ta tz'u-tien* and the Harvard-Yenching Institute's *Chinese-English Dictionary Project*, provides a telling indication of the proportional relationship between the usage of single characters and that of polysyllabic expressions. Although both of these dictionaries were abandoned in the early stages of compilation, fragmentary samples were published. The *Chung-shan ta tz'u-tien* volume for the graph *i* ("one") includes six pages of entries for the single character divided into 57 separate explanatory definitions. Contrast this with the 472 pages of polysyllabic entries which follow (altogether 5,474 separate items). The Harvard-Yenching fascicle for radical *tzu* ("child") consists of 12 pages of definitions for the single graph, divided into 29 categories of meaning, and 49 pages of polysyllabic entries numbering in the hundreds.

Nonetheless, conversations with older, highly literate Chinese,

who are perhaps somewhat less perspicacious and flexible than Wang Kuo-wei and Hu Shih, have convinced me that it is very difficult for many of them to think of any variety of Chinese language as other than monosyllabic. There are exceptional individuals, such as the applied linguists, Zhou Youguang and Ni Haishu, who are at the very vanguard of progressive lexicographical reform. But the majority of Chinese who received their education before the advent of compulsory exposure to *Pinyin* (romanization) in schools — and this still includes most of today's Chinese dictionary makers — resist strongly the idea that the basic unit of coherent discourse may be larger than a syllable in length.

They presumably conceive of *t'u-shu-kuan* ("library") as three separate graphs ("picture book hall"[?]) rather than as a single term. Never mind the fact that there exists a commonly used graph  (pronounced *t'u-shu-kuan*) which would seem to indicate that it is only one word. By this same logic, we would be compelled to think of English "bibliotheca" as a "case for books" instead of as a library. I could cite other widely recognized (among semi-literate individuals) but unofficial characters of this type. George Kennedy's persuasive paper on "The Monosyllabic Myth" should have demolished forever the chimerical conception that Chinese languages consist of words that are only one syllable in length. Highly literate Chinese, however, have been living with and believing in the myth of monosyllabism for so long that it will not die easily. Because many older Chinese cannot comprehend the idea of polysyllabic words (*tz'u*), they cling tenaciously to the inviolable independence of each syllable. Hence acceptance of a single-sort alphabetical serial listing may be too large a concession to ask of many Chinese at this stage. In such cases, individual characters may be arranged by sound and multisyllabic entries can be listed in alphabetic order under these headings. Several dictionaries have utilized this compromise principle, among them John DeFrancis's *Index Volume*, Wen-shun Chi's *Dictionary of Contemporary Usage*, the Yale *Dictionary of Spoken Chinese*, and — an early example — MacGillivray's *Mandarin-Romanized Dictionary of Chinese*. The better (in the sense of being handier) dictionaries of this type combine in a single alphabetical

series all words having the same initial syllable, regardless of which graphs the syllable represents. The result, however, as in DeFrancis' *Index Volume*, is that we must hunt for *mixin* ("superstition") before *minjian* ("folk"). Less desirable is an alphabetical arrangement of head characters and total stroke counts for the subsequent graphs in each entry (e.g. Sybil Wong's *Chinese Communist Agricultural Terminology*). Yet this is far preferable to a radical, corner, or stroke look-up of initial characters. At any rate, I am by no means alone in pointing out the superior facility of sound look-ups over other types (cf. the astute and apposite remarks of Barnes, pp. 308-309 and DeFrancis, 1985).

So far, the best general dictionary of Mandarin known to me that employs the mixed or compromise principle is the *Dictionnaire Français de la Langue Chinoise* edited by the Ricci Institute. It has so many excellent features that I shall list a few of them here for the consideration of the compilers of the next generation of Chinese-English dictionaries. All characters with the same pronunciation (regardlesss of tone) are printed together in one block at the beginning of each syllabic tabulation. The main order of the dictionary is according to Wade-Giles romanization but each syllable heading also prominently displays National Phonetic Symbols (*po-p'o-mo-fo*), Pinyin, National Romanization (Gwoyeu Romatzyh), and the spellings devised by l'École Française de Extrême-Orient. For each character, radical number and residual strokes are given, as well as an indication of its frequency of appearance, variant pronunciations, and part of speech. Listed under each character in alphabetical order are the multisyllabic words and expressions beginning with that graph. The dictionary contains approximately 6,500 single graphs and 50,000 words, phrases, and other multisyllabic character combinations.

For those whose first romanization is not Wade-Giles, the front and back endpapers of the Ricci Institute dictionary offer comparative charts of Pinyin and National Phonetic Symbols. An É.F.E.O. chart may be found among the numerous appendices. Other thoughtful and clearly presented material provided for the user's ease of reference are extensive chronological tables that reach back to the

paleolithic period; the heavenly branches and earthly stems together with corresponding symbolic, astronomical, directional, and horological associations; the sexagesimal cycle together with the new year's date for the period 1864-2043; the twenty-four solar periods with a helpful explanation; weights and measures (metrical, traditional, and Taiwanese); information on the *Book of Changes (I-ching)* and its hexagrams; a table of the different pronunciations of 858 "phonetic" elements used in the composition of Chinese characters (based on Wieger, pp.397-566); four-corner index; stroke index; radical index (provides one word definitions for each character); difficult characters (by number of total strokes); charts of simplified and complex forms. This description of the Ricci Institute dictionary, while by no means exhausting its manifold virtues, should give an idea of the type of thorough treatment Sino-English lexicographers should strive to emulate and, if possible, surpass by utilizing a single-sort alphabetical order.

The alphabetical principal of arrangement can be utilized even for such a tonally complex language as Cantonese or Amoy (Hoklo). In Oakman's *Cantonese-English Dictionary*, all single characters having the same spelling are grouped together in one place, subdivided by tones (e.g. upper level, upper rising, upper falling, upper entering, middle entering, lower level, lower rising, lower falling, lower entering). Underneath the single head characters are arranged polysyllabic expressions beginning with or including them. The entries in Douglas' excellent Amoy (Hoklo) dictionary are arranged alphabetically by key syllables which usually occur in the initial or final positions of polysyllabic expressions. Some few also stand alone as monosyllabic words. It should be noted that no characters occur in the entire dictionary.

There are already models for the type of Mandarin dicationary I am advocating in this article. In 1958, the People's Republic of China Committe for the Reform of the Written Language (Wen-tzu kai-ke wei-yüan-hui) published a list of 20,100 and some words of Mandarin. This was revised and expanded to 59,100 odd words in 1963 and has been reissued on several occasions thereafter. While this so-called *tz'u-hui* gives only the pronunciation of words and

expressions in alphabetical order and lacks definitions, it shows very clearly the feasibility and usefulness of such an arrangement. I have long expressed the wish that the 1963 word list be converted into an actual dictionary. On July 4, 1983, I met with officials of the Committee for the Reform of the Written Language in Peking. They informed me that they were working on another revision of their word list and that they would consider making an alphabetized dictionary based on it. Their eyes lit up when I told them I would gladly pay a small fortune for such a reference tool. An alphabetically ordered dictionary would certainly be worth such a sum because of the huge amount of time it would save in my research. Naturally, I hope that the Chinese will be able to produce this type of dictionary at a cost that will make it widely available. They are already publishing a respectable encyclopedia with entries given in strict alphabetical order. This is the *Large Chinese Encyclopedia (Chung-kuo ta pai-k'e ch'üan-shu)* which, unfortunately, is being issued in the cumbersome format of topical volumes. The adoption of this alphabetical arrangement for the encyclopedia was achieved only after major battles waged between monosyllabic-minded traditionalists and polysyllabically oriented reformers. We are indebted to the latter for their vision, persistence, and courage.

I have also recently discovered that a consortium of research organizations in Shanghai, Kiangsu, Chekiang, Fukien, Anhwei, and Shantung is compiling an *Unabridged Chinese Dictionary (Han-yü ta tz'u-tien)* to compete with the Sino-Japanese *Dai Kan-Wa jiten* (estimated 500,000 entries) of Morohashi Tetsuji and its Taiwan reworking, the *Chung-wen ta tz'u-tien*. The general editor is Luo Zhufeng, Vice-Chairman of the Federation of Social Sciences and Chairman of the Shanghai Institute of Language. He is assisted by six assistant editors. The new mainland dictionary will have more than 300,000 entries and will be published by the Cishu chubanshe of Shanghai. At times, there have been as many as 500 people working on the project; presently several dozen are employed. The project was initiated in 1975 and writing commenced during 1979. The initial volume, appparently to contain the first few radicals, was scheduled to be issued in 1985 and subsequent volumes are to follow

at yearly intervals. The goal for completion is 1989. According to my informants (Xu Weixian, Guan Dedong, Yin Binyong), this dictionary will not be ordered in the manner I have advocated and it seems to be too late to hope for any change of format. But since this will be a specialist's dictionary intended primarily for classicists, the need for an easy finding system is not so pressing. After correspondence and conversations with individuals involved in this project, I hold some real hope that various auxiliary devices will be provided to make this important new dictionary as convenient as possible for users. While the editors responsible for the dictionary seem determined that a new system of 201 radicals will be used, they did entertain the possibility of including an index based on the traditional 214 radicals which most Western Sinologists partially memorize. There will also be a four-corner index and, most reassuring of all, a Pinyin index of all pronounceable characters is promised. Citations to specific editions of texts will be provided for all entries and pronunciation will be indicated "where necessary". I have requested that full pronunciations be given for all entries but space limitations may prevent such an undertaking. For the same reason, it may also be impossible to provide a single-sort alphabetical index of all entries, though I have lobbied hard for the inclusion of such a precious tool. The new *Unabridged Chinese Dictionary* will have a companion *Unabridged Dictionary of Single Characters (Han-yü ta tzu-tien)*. The latter will include nearly 60,000 graphs. It is being prepared under the general editorship of Zhao Zhenduo of the Chinese Department at Szechwan University and is scheduled to appear in 1989, the same year that the *Han-yü ta tz'u-tien* is aiming for completion.

Actually, the 1958 alphabetized listing of Mandarin words and expressions mentioned above was preceded by B. Isaenko's experimental attempt in 1957 to create an alphabetized dictionary. And Kuraishi Takeshirō published his excellent alphabetized Mandarin-Japanese dictionary in 1963. Is this just one more example of Russian prescience and superior Japanese efficiency?

As a matter of fact, all of these attempts were predated by Simon's *A Beginner's Chinese-English Dictionary of the National Language*,

For its size (14-15,000 entries composed of about 5,740 separate graphs), this is probably the finest dictionary of Chinese ever published. All entries are arranged in strictly alphabetical order by G(woyeu) R(omatzyh). If one knows the sound of a Chinese word or expression, he can look it up as rapidly as in an English dictionary (e.g., *fuhbeen* "duplicate", *fuhbih* "restoration of monarchy", *fuhbuh* "a kind of foreign cloth", *fuhchaanpiin* "by-product", *fuhchin* "father", *fuh ching* "to pay over in full", *fuhchou* "to take revenge; vendetta", *fuhchyuan* "rehabilitation", *fuh chyn* "to play the lute", *fuh dann* "to bear a burden", and so forth). There is also a delicious assortment of tables and indices, of which I list here a selection: "The Radicals with their Mnemonics", "The Most Important Classifiers", "Weights and Measures", "The Ten Stems and Twelve Branches", "The Sexagenary Cycle", "The Twenty-Four Solar Terms", "A Concordance: Gwoyeu Romatzyh — Wade-Transcription", "A Concordance: Wade-Transcription — Gwoyeu Romatzyh", "The Chinese Phonetic Alphabet (*Juhin Tzyhmuu*)", "The Chinese Numerals Written in Various Styles", "The Four Styles of the Chinese Script", "The Wang Yunwuu Four Corner System", "Chronological Tables", "Geographical Names", "Radical Chart", "Radical Index", "List of Characters Difficult to Find in the Radical Index". An even smaller dictionary possessing a similar alphabetical arrangement is Fred Fangyu Wang's *Mandarin Chinese Dictionary*. Its 6,000 entries make it suitable only for the restricted purpose of the elementary student. This setup has also occasionally been tried in specialized dictionaries such as Joseph D. Lowe's *Military Terms*. The problem with Simon's and Wang's dictionaries is that they are simply not large enough. The advanced reader of Chinese is quickly discouraged from using these otherwise excellent tools because, more often than not, what he is looking for is just not there.

The French have not been slow to perceive the advantages of a single-sort alphabetical arrangement. A team of editors and Chinese informants from the Centre de Recherches Linguistiques sur l'Asie Orientale, École des Hautes Études en Sciences Sociales (54, Boulevard Raspail, 75006 Paris) has completed one-fifth of a 60,000 entry general Chinese-French dictionary arranged according to Pin-

yin transcription. Having examined two fascicles of the draft, I find them to be of high quality and extraordinary usefulness. In my estimation, when this project is completed in its entirety, it will yield the best medium-sized dictionary of modern Chinese available to date in any language. My only regret is that the dictionary will not be in English. Nonetheless, I still support this dictionary strongly because it is so beautifully conceived and designed. Even though the explanations will be in French, the dictionary will still be essential for me because of its brilliant arrangement. It would be a shame if funds for this project were cut off before it is finished. I would make only one suggestion at this juncture and that is that the editors consider inclusion of a finding list of all 9,000 characters arranged by the traditional radicals. With such a finding list, those single characters in the morphological sections whose pronunciation is not known will still be locatable.

The CETA (Chinese-English Translation Assistance) Group, with substantial United States government assistance and material support, is compiling a large Chinese-English general dictionary of over 100,000 terms (including technical terms, the current files run to nearly half-a-million entries). Since the entire dictionary is stored in computers, it should be relatively easy for CETA to run off an alphabetically ordered version. This is a desideratum of the greatest urgency and presents our profession with a tremendous golden opportunity. I have myself taken steps that may eventually lead to the development of an alphabetically ordered dictionary based on (but not limited by) the CETA files. Any support from my colleagues would be most warmly welcomed.

There are two other major dictionaries of modern Chinese under preparation. One is being compiled by the Tz'u-tien shih (Dictionary Section) of the Yü-yen yen-chiu-so (Research Institute for Languages) in the Chinese Academy of Sciences and will have a projected 120,000 entries. The other (Chinese-English) was launched on July 1, 1984 by the Department of Asian Languages and Literatures at the University of Massachusetts (Amherst). It is being undertaken in cooperation with a full-time staff of 20 at the Peking Institute of Foreign Languages and will include approximately 100,000 entries.

Since both of these projects will likely be consuming large amounts of PRC and US government funding, it is in the interests of all concerned to see that these dictionaries have some means of alphabetized access.

In light of the recent appearance of the massive *Bol'shoi Kitaisko-Russkii Slovar'*, compiled under the chief editorship of I. M. Oshanin, I would seriously recommend that efforts toward the creation of a large new Chinese-English dictionary be coordinated. It would be much preferable if funding agencies were to make all of their grants to a joint commission for the preparation of a quality, thorough product rather than frittering away several hundred thousand dollars through sponsoring two or three medium-sized, mediocre dictionaries. We already have more than enough of these costly artifacts of incompetence clogging the shelves of our libraries. Whether from government agencies or private institutions, funds for the compilation of a new dictionary should be firmly withheld until the organizers of the project can demonstrate that their work will exceed in scope and excellence all existing Chinese-English lexicons. It would be a shame, indeed a pathetic travesty, if all that $200,000 could buy would be two additional dictionaries like *Mathews'*, *The Pinyin Dictionary*, *Lin Yutang's*, or Liang Shih-ch'iu's. Even one more such dictionary — considering the fact that we are already blessed with such a plethora — would be a worthless excrescence. Two more would be simply too much, like bringing owls to Athens. There are numerous desiderata for a good dictionary of Chinese. Since Elling Eide (1975; see also David Jordan, 1981) has already stated them so eloquently and forcefully, there is no need for me to repeat them here. I will mention only that a good many of them have been met in the impressive Russian dictionary mentioned at the beginning of this paragraph.

The *Bol'shoi Kitaisko-Russkii Slovar'* might almost serve as a model of completeness for a dictionary of modern Chinese. In the first place, it is huge, containing around 250,000 words and expressions listed under 15,681 characters. The entire first volume, out of four, is dedicated to making the life of the user as easy as possible (traditional Chinese lexicographers seem to have delighted in putting

stumbling blocks between those who consulted their works and the items they were in search of). I shall note here only a few of the available aids: a long list of place names, full chronological tables and a finding list of reign periods, calendrical charts, weights and measures, and four corner, radical, and Pinyin indices of 15,505 single characters. The entries include usage notes, sample sentences, and parts of speech. So far, my only complaint is that this superb reference work is organized by the type of stroke(s) in the bottom right corner of each character. Admittedly, this system, designed by V. Vasil'ev, O. Rosenburg, A. Hionin, and V. S. Kolokolov, is about the best one can expect for directly looking up single characters by their shape. But, for the sake of speed and efficiency, I would have much preferred a single-sort alphabetical listing or at least an alphabetical listing under each of the head characters (many of them have hundreds of entries). The arrangement by shape of characters is a significant drawback for frequent users of the dictionary for whom time is of the essence. Until someone can improve upon this magnificient new Sinological research tool, however, all that we can do for the present is gape in wonder and awe. In other words, unless Sino-English lexicographers can come up with something to match it (and right now we appear to be far removed from that level), this new dictionary is another good reason for specialists in Chinese studies to learn Russian.

One of the questions people frequently ask me when confronted with the idea of an alphabetized dictionary of Mandarin is "How will I be able to look up a word in it if I don't know the pronunciation?" My answer is that, after just four years of studying Mandarin, one usually knows the pronunciation of approximately 93% of the tetragraphs (my translation of the term *fang-k'uai-tzu)* one encounters in a typical text and can guess at most of the rest. A syllabary such as Goodrich's can be used to solve any remaining problems. What one does not know are the exact meanings of various character combinations. For example, every first-year student of Mandarin knows that *mu* means "tree" and *erh* means "ear", but how many know that *mu-erh* designates a type of edible fungus (*Auricularia auricula judae)*? Every second-year student is probably aware that

jih means "sun" and *she* means "shoot", but how many could imagine that *jih-she* is the equivalent of "insolation"? Every third-year student surely knows that *ching* means "scripture" (as well as a lot of other things) and that *tuan* means "break" but how many of them could guess that *ching-tuan* is a technical term in Chinese medicine for "menopause"? This list could be multiplied many thousand-fold. The problem is analogous to that with other languages when the fledgling complains, "I know how to pronounce this word but don't know what it means." Admittedly, learning how to pronouce aloud Chinese written texts is a vastly more difficult exercise than is reading out any alphabetic script. But, then again, there are other aspects of Chinese graphs that are even more demanding, such as recalling how to write them. So long as the Chinese people continue to use the tetragraphs, we are obliged to become familiar with their pronunciation. And so long as we expend enormous amounts of energy to become reasonably proficient in reading them off, it seems silly not to capitalize on that effort through minimizing the amount of time spent in looking up new words composed of graphs that one is already able to pronounce.

For someone who has been actively involved in Chinese studies over a period of ten or fifteen years, the process of looking up a word (let us say *t'ing-tuan)* in his battery of Chinese dictionaries goes something like this. As he stares fixedly at the graph *t'ing*, he cannot be totally sure whether the radical is "ear", "ten", "eye" on its side or maybe "net", "one", "heart", or "jade". He knows that the graph basically means "hear" so by all rights it should be listed under "ear". But he has been burned too many times before, as with *chiang* ("general" — under "inch", not "couch" or even more logically "claw"), *mei* ("beautiful" — under "goat", not "large"), and so on. Although his insecurity is excusable, he feels a little bit guilty about not looking under "ear" and has an impulse to do so but his eyes begin to glaze over as he contemplates all of the residual strokes he would have to count. Supposing he were to miss one? He loses more time as he decides what to do next. He normally avoids *Mathews'* because of the vagaries of its spellings and because it is so hopelessly out of date. But this leads him to an even deeper

quandary. He suspects that *t'ing-tuan* is a pre-modern juridical term and *Mathews'* (104,000 entries under 7,785 head characters ordered by sound) generally has decent coverage of this sort of language. Still he decides, for the moment, to stay away from *Mathews'* because he does not trust its definitions. Should he try the mainland Pinyin dictionary? That is an easy way out because it is the closest thing available to an alphabetically ordered medium-sized Mandarin-English dictionary. At least the words are filed alphabetically under the individual tetragraphs and the latter are themselves arranged by sound. As he turns it pages, a sense of futility begins to set in; he is convinced the term will not be there. Somewhere he has heard the term before, perhaps in a Ch'ing documents class or in a historical movie. He is almost certain that both graphs should be pronounced in the fourth tone. Imagine his chagrin when he discovers that the Pinyin dictionary does not even have *t'ing* in the fourth tone! But he really should have expected that too because he long ago became aware of the extensive language engineering that went into this dictionary. Well, perhaps the editors have cunningly hidden *t'ing-tuan* under the first tone? No, it is not there either. Although they have indeed entered many words beginning with *t'ing* in the fourth tone as having initial first tones, *t'ing-tuan* is not among them. Still at ground zero. Now our beleaguered Sinologist begins to fidget. *Mathews'*? He simply does not trust it. His fingers begin to twitch toward the encyclopedic dictionaries that fill two of his book shelves. He decides that is the last resort because the volumes are so heavy and he would have to bend his aching back far to the left to fetch them. Furthermore, he would like an authoritative English translation if possible and in any case he would have to count the blasted strokes or contend with index volumes to find the term in them. Authoritative! Ah, yes. A wave of temporary exhilaration washes over him. He recently purchased a *A Dictionary of Chinese Law and Government* compiled by Philip R. Bilancia. What is more, this specialized dictionary has wisely been alphabetically arranged in a single-sort sequence. Since he knows how to pronounce *t'ing-tuan*, he ought to be able to find it in a trice. Within seconds, he flips adroitly to the spot where it should be. Alas! it is not there. Crestfallen, he

assumes the term is no longer current in Chinese jurisprudence. What next? He does not expect that there is much hope at all of *t'ing-tuan*'s occurrence in Hucker's splendid new dictionary of official titles but the fact that it is arranged in the same fashion as Bilancia's causes his fingers to twist wistfully in its direction. The third volume of the massive (212,000 entries) *Modern Chinese-English Technical and General Dictionary* is arranged according to Pinyin romanization in strict alphabetical sequence but he decides not to look into it either because it emphasizes scientific and technical terminology so heavily (80%). He considers walking across the study to get one of his older Chinese-Chinese legal dictionaries. He abandons the thought, however, on recalling that they are arranged by total stroke count and under that probably by radicals. They also tend to be too technical for his present purposes. Still hoping to find an adequate English rendering, he reluctantly reaches for *Mathews'*. Without too much trouble he locates the expression: "to accept a legal decision." At first he heaves a half-hearted sigh of relief but then falls prey to his old doubts. The definition does not sound right and it most assuredly does not fit the context in which he originally encountered it. As our suffering Sinologist rolls his head back in exasperation, the *Gwoyeu tsyrdean* catches his eyes. Ahh! Why didn't he think of it before? The *Gwoyeu tsyrdean* orders the tetragraphs according to the Chinese syllabary (*po p'o mo fo*, etc.), is consistently reliable, and includes many outmoded and dialectical words. He swiftly turns the pages of volume one. There it is: *tinqduann*. The definition provided helps him understand vaguely what the term means but it also immerses him in a vortex of circularity. From *t'ing-sung erh tuan-chüeh chih*, he feverishly races to *t'ing-sung* where he finds *shen-li sung-an* and *tuan-chüeh* where he finds nothing. He draws another blank at *shen-li* and for *sung-an* he discovers *su-sung an-chien*. *Su-sung* finally yields a noncircular and moderately enlightening explanation but *an-chien* sends him off on another merry goose chase (part of it leads right back to *su-sung*).

By this time, the beleaguered scholar's desk is strewn with dictionaries as numerous as dead soldiers on a battlefield. He realizes that *t'ing-tuan* has something to do with a court's decision concerning

litigation brought before it. His instincts and training drive him to pursue a precise English translation. This in turn leads him to think of Lin Yutang who, when he is not being cute or obtuse, sometimes provides uncannily apt equivalents. What is more, Lin drew heavily on the *Gwoyeu tsyrdean* in compiling his own dictionary (about 80,000 entries under approximately 8,000 characters), so there is a fairly good chance that *t'ing-tuan* might be in it. Our harried Sinologist would rather turn to the romanized index of single graphs than resort to Lin's so-called "Instant Index System". After thumbing pages and keeping numbers in his addled brain for longer than he would like, the poor soul stumbles upon Lin's definition which is "(of judge) decides at court". Lin did not utterly fail him this time for the definition given finally points out that *t'ing-tuan* is something done by a judge.

His reserves of stamina almost exhausted, the distraught Sinologist at last gets down the dictionary he would have begun with had it not been ordered by radical, viz. Liang Shih-ch'iu's (80,000 entries under 7,331 head characters). He turns to the Wade romanization index at the back, numbly runs his fingers down the rows of tiny graphs until he finds the right one, enters its number in his temporary memory, turns the pages in a daze, forgets the number for *t'ing*, goes back to the index to retrieve it, finds the graph again, locates the term *t'ing-tuan*, and dissolves in tears when he reads "to pass a judgement or verdict after hearing the case." Although the English is not wholly idiomatic, it is at least clear-cut.[1] If only there were a lexicographer of Liang Shih-ch'iu's ability who also had the perspicuity to arrange his dictionary by sound rather than radical!

The small drama recounted in the preceding paragraphs is re-enacted dozens of times each day in the lives of most conscientious students of Chinese civilization. No wonder most of us are so sour and gray by the time we reach fifty! The amount of time consumed and the spirit expended in this sort of meaningless, not to mention destructive, type of activity is beyond calculation. My personal experience and experiments with my students and colleagues have demonstrated that words can normally be found two to ten times faster in a single-sort alphabetically arranged list than in other types

of arrangements.[2] Given these circumstances, it is ludicrous to produce another dictionary of Mandarin that is geared to a finding system devised for the "monosyllabic"(?) classical language. Modern Chinese do not think or speak in monosyllables. There is no compelling reason to create another dictionary of modern Chinese that pretends they do.

The type of dictionary I propose here would not only be useful in the day-to-day reading of texts. It would also have a salutary effect in the search for machine translation and machine-assisted translation capability. With such an alphabetically ordered dictionary in its memory, the computer could hunt for words and expressions at a fraction of the time and cost of any other finding system. As a matter of fact, prototype studies have already been undertaken using this method. As examples, I refer to the research of Paul Thompson on early philosophical texts and statistical analyses of modern novels undertaken recently in China (Feng Shu-hua, *et al.*). The current trend in computer input is decidely in favor of romanization. The reasons why this is so have been lucidly explained in two articles by Joseph D. Becker. Basically, romanization is the *only* means of Chinese computer inputting that is easy to learn, fast, and touch-typable by non-professionals. Conversely, sheer numerical magnitude makes *any* direct entry of Chinese characters cumbersome and difficult (and consequently, in most cases, slow and expensive). Programming details for retrieving *kanji* via *romaji* keyboarding have already been solved by Japanese computer scientists several times over. Many researchers are now in the process of completing programming for the romanized inputting of Mandarin Chinese, among them Duke University, OCLC (Online Computer Library Center), ICL (International Computerized Linguistics), Asiagraphics, Wen-tzu kai-ke wei-yüan-hui (The Committee for the Reform of the Written Chinese Language), the University of London, Hua Ko Electric Company Limited, Toshiba, and the University of Pennsylvania, to name only a few. Xerox has already perfected its fabulous STAR word-processor which can handle Chinese, Japanese, Korean, Arabic, Hindi, etc. with a standard keyboard.

Even the archaic and exceedingly clumsy Chinese typewriter has

been rearranged according to the principle of alphabetization. This has been carried out independently at least twice — once by workers at the Harbin School of Medicine and another time by Robert S. Bauer. The compelling logic that drove Bauer to rearrange the thousands of bits of lead in his typewriter is explained by him thus (p. 138): "Thinking there must be a faster, easier way to find characters than looking for them by their radicals and, recognizing that I knew how to pronounce most of the characters in the tray, I hit upon the logical alternative of rearranging them by their pronunciation." This is the same logic that is inexorably causing the shift in Chinese information processing of all sorts (hospital registration, library catalogues, telephone books, airline reservations, various types of brokerage, and so on) from radical, stroke, corner, and code classification to alphabetization. But compatibility with these and other computer applications only represents the beginning of the usefulness of a single-sort alphabetically ordered dictionary. It would also be helpful in Chinese language pedagogy and in reading romanized materials such as *Xin Tang/New China* and the various *p'in-yin pao* (romanized newspapers) on the mainland that are increasingly evident. An added benefit would be that even interested non-specialists would have far greater access to Chinese languages than they do now.

Several times I have begun compiling a single-sort alphabetized dictionary of Mandarin but have been repeatedly discouraged by the realization that — if the job is to be done well — such a gargantuan task is beyond my private resources. One of the purposes of the present article is to call the attention of my colleagues to the critical necessity for a dictionary of this nature and to enlist their help in making it a reality. The other is to suggest that *all* new Sinological reference tools — even those for classical studies — should at least be equipped with alphabetically ordered indices and finding lists. Someone who already knows the pronunciation of a given expression but not its meaning should *not* be cruelly burdened by having to fuss with radicals, corners, strokes, and what not. Let him go *directly* to the object of his search instead of having to make endless, insufferable detours in an impenetrable forest of graphs. It makes little sense to append a radical index of all entries when the main body

of a dictionary is itself already ordered by radicals. Yet this is precisely what Tai Yüan-ch'ang and Miu T'ien-hua have done in their dictionaries of Taoism and set phrases. It is equally wasteful to organize the main body of a dictionary by total stroke count of head characters and then provide a finding list that duplicates the same organization. Li Shu-huan's dictionary of Taoist religious terms and Hu P'u-an's collection of colloquialisms follow this all too common pattern. My much-consulted dictionary of Chinese Buddhist terms by Soothill and Hodous is maddening because of its arrangement by total stroke count. Some editions come with a total stroke count index as well which is full of errors. Often when I am pressured for time, I end up having to guess what the Sanskrit or Pali original for the Chinese might be and then consulting the dictionary via the romanized Sanskrit and Pali index at the end. Even more extravagant is Lu Tan-an who arranges his dictionary of dramatic expressions by total stroke count and then proceeds to offer *two* finding lists (one for head characters, the other for full entries) that are also ordered by the number of total strokes! Inconvenient as these methods are, they cannot begin to compete with P'an Li-wen's *Dictionary of Chinese and Foreign Colloquialisms*. This is a rich collection of proverbs and maxims, some from very obscure sources. It is virtually useless, however, unless one is willing to read through the entire book each time he is in search of an expression. Entries can be found only through the broad categories ("Nature", "Neighbors", "Education", etc.) under which they are grouped. To put the matter bluntly, it is impossible to search efficiently for a specific entry.

Not all the dictionaries being produced in Taiwan, Hong Kong, and China are cause for despair and regret. A new and heartening trend, particularly in the PRC, is the inclusion in many reference works of alphabetical indices. Examples are Wang Li's compendium of etymologies and the biographical dictionaries of literary personages compiled by Yao Tien-chung and Pei-ching yü-yen hsüeh-yüan. Although the main listing of these indices is by the sounds of the head characters alone, one can find entries in them in a small fraction of the time it would take were one using a radical, corner, or stroke index. The time could be reduced even further if a single-sort al-

phabetical sequence were employed. One interesting and useful format I have noticed is that of Feng Ch'eng-chün's dictionary of place names in the "Western Regions". Here the main body of the text is disposed according to the romanized form of the original Sanskrit, Greek, Turkish, Arabic, and so forth. A supplementary total stroke count finding list is also provided. The most recent edition of what has become the standard general dictionary of Mandarin in Chinese, *Tz'u-hai [Ocean of Phrases]* (1979; 106,578 entries under 14,872 characters), includes an alphabetical finding list for all foreign names and an index of all single characters arranged by Pinyin. And even the somewhat more classically oriented *Tz'u-yüan [Source of Phrases]* (1979–1983; 84,134 compounds under 12,890 single characters), though its main listing is still according to radicals, now provides an alphabetical index. These are heartening developments which bode well for the future of lexicography in China.

The latest lexicographical treatises that have been written in China show a partial appreciation and understanding of the alphabetical arrangement for dictionaries. For example, in his *Tzu-tien he tz'u-tien [Single Character Dictionaries and Word Dictionaries]*, Hsü Ch'ing has this to say (p. 72):

> The method of ordering by sound is a comparatively scientific way for arranging and looking up [single characters]. This is a direction to which new dictionaries should adhere. However, it is somewhat difficult to adopt this method for large dictionaries which include both ancient and modern expressions as well as for general character dictionaries of ancient Chinese. The reason is that our Chinese characters do not indicate their sound. The number of characters which the average person can correctly pronounce are actually quite few. As a result, they would have no way of looking up by alphabetical ordering those difficult characters, old forms, obscure characters, variant forms, and so forth that occur in many old books. All we can do is to continue as before to avail ourselves of some system of radicals.

This is a sensible enough statement, so far as it goes. What is regrettable, however, is that Hsü and other Chinese lexicographers seem to be completely unaware of the concept of a single-sort alphabetical order for modern Chinese languages. So deeply en-

trenched is the monosyllabic myth that they can only vouch for the efficacy of looking up individual graphs by their sounds. For all except the largest classical language dictionaries and some specialized sinological reference tools, whose use is restricted to a very small segment of the population, a single-sort alphabetical sequence is the most efficient and convenient means for listing entries.

In conclusion, this review article stands as a plea to all makers of Chinese dictionaries and other reference books. The tempo and quality of Sinology is sure to be raised if the contents of new research tools is made more readily accessible through the principle of alphabetical ordering. This is a principle that has been tried and tested repeatedly — both in the East and in the West. It remains now only to be put into practice through widespread application in Chinese studies. There is little to lose from adopting such a strategy and much to gain, including an enhanced understanding of diverse aspects of Chinese civilization.

Endnotes

[1] After some fumbling around, our harried Sinologist also succeeded in finding *t'ing-tuan* in his new Russian dictionary. The straightforward definition it gives is "to hear and decide a law case." The Ricci Institute dictionary gives the same definition.

[2] A test was designed to compare the amount of time spent in looking up various expressions in different kinds of dictionaries. I administered the test to speakers of East Asian languages that still use characters to one degree or another (Chinese, Japanese, and [South] Korean). Copies of the test instrument are available from the author. In some instances, it took up to fifty times longer for an individual to find a given expression in a radical dictionary than for the same person or one of equal ability in the language to locate it in a single-sort alphabetical list. Many times users of radical dictionaries never did find the characters for which they were searching.

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Abbreviations: *JCL/Journal of Chinese Linguistics*
JCLTA/Journal of the Chinese Language Teachers Association

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