## Order of Introduction for the Letters

| LOW | CA |  |  | 5 |  | 5-02 | $p$ | 0 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1-01 | $\boldsymbol{\omega}$ | a | 3-01 |  | e: |  | A | - |
| 1-02 |  |  | 3-02 | [ | $\partial$ | 5-03 |  | B |
| $1-02$ | 4 | p | 3-03 | d | zh | 5-04 | 2 | GH |
| 1-03 | 4 | n | $3-03$ |  | 2 h | 5-05 | 7 | D |
| 4 | $\boldsymbol{\sim}$ | m | 3-04 | $\delta$ | ts | 5-05 |  |  |
|  |  | m | 3-05 | $d$ | dz | 5-06 | 9 | P |
| $1-05$ | п | 0 | 3-06 | 6 | ch | 5-07 | 4 | G |
| 1-06 | mL | u |  |  |  | $5-08$ | ゐ | ZH |
| 1-07 | 4 | s | 3-07 | 2 | sh |  | J | ZH |
| 08 |  | 1 | 3-08 | 2 | ch' | 5-09 | 4 | V |
| 1-09 | $L$ | 1 | 3-09 |  | j | 5-10 | 4 | K |
| 1-09 | $b$ | e | 3-09 | 2 | J | 5-11 | $\boldsymbol{f}$ | K' |
| 1-10 | $\boldsymbol{h}$ | i | 3-10 | $\pi$ | rr | 5-11 |  |  |
| 1-11 | 4 | k | 3-11 | $\boldsymbol{\psi}$ | $\mathrm{p}^{\prime}$ | 6-01 | 2 | Z |
| 12 | + | r | 3-12 | $\$$ | $f$ | 6-02 | $\underline{2}$ | DZ |
|  | r |  | 3-13 | 4 | ev | 6-03 | 2 | J |
| , | $\boldsymbol{\pi}$ | $t$ | UPPER | CAS |  | 6-04 | 9 | CH' |
| 1-14 | $J$ | y | 4-01 | U | S | 6-05 | 3 | Y |
| 1-15 | 0 | o: |  |  |  | 6-05 | 3 | Y |
|  |  |  | 4-02 | 1 | A | 6-06 | 8 | TS' |
| 2-01 | 4 | v | 4-03 | $\boldsymbol{J}$ | M |  | 0 |  |
| 2-02 | $\zeta$ | h | 04 | $\underline{7}$ | N | 7-01 | 0 | O: |
| 2-03 | $\square$ | t' |  |  |  | 7-02 | $\delta$ | TS |
|  |  |  | 4-05 | I | O | 7-03 | $\phi$ | $\mathrm{P}^{\prime}$ |
| 2-04 | 7 | d | 4-06 | пh | U | 7-04 | 0 | T' |
| 2-05 | 4 | g | 4-07 | If. | RR | 7-04 | 1 | T |
| 2-06 | P | k' | 4-08 | b | I | 7-05 | IJ | KH |
| 2-07 |  | ts' |  |  |  | 7-06 | 4 | H |
|  | 9 |  | 4-09 | 1 | L | 7-07 | 8 | CH |
| 2-08 | $\eta$ | gh | 4-10 | $\boldsymbol{F}$ | E: |  | $T$ |  |
| 2-09 | F | b | 4-11 | $b$ | E | 7-08 | $\boldsymbol{T}$ | SH |
| 2-10 | fr | kh |  |  |  | 7-09 | S | T |
| 2-11 | \$ | z | 5-01 | $\boldsymbol{\Gamma}$ | R | 7-10 | 8 | F |

## Devanagari Script

Devanagari script uses the basic system used for all the Indian scripts described in this chapter. (1) There is neither a distinction between capitals and small letters as in Latin script nor a variation in initial, medial, and final forms as in Arabic script. (2) There are vowels and consonants. (3) Each consonant includes an inherent $a$-vowel. (4) Vowel signs are used; when a consonant's inherent $a$-sound changes to a different vowel, an abridged form of the appropriate vowel letter is attached to the consonant. (5) Conjunct consonants are used; when two or more consonants are combined with no intervening vowel, they are written as one letter. (6) Letters run from left to right on a horizontal line, with a space between each word.

Devanagari script is used to write Sanskit, Hindi, Marathi, and various other Indian languages. Though its writing system for Sanskrit is very intricate, the following tables suffice for Hindi.

## Vowels



## Consonants


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WRITING SYSTEMS OF THE WORLD


## Vowel signs

 Thus, fo $k i$, के $k \bar{e}$.

Conjunct consonants Succeeding consonants become subscripts:ड $n g a+$ क $k a=$ ङ $\dot{\boldsymbol{n}} k a$. Preceding consonants become half letters: न्स nsa, ष्म shma. Such forms are ferequently used in printing for convenience: क $\rightarrow$ क्क $k k a$.
Transformations: क $k a+$ ष $s h a=$ क्ष ksha, त ta + त ta $=$ त ta. Preceding $r$ becomes $)^{\circ}$ म ${ }^{\bullet} r m a$.
Succeeding $r$ becomes or ; thus क ra, ट्र fra, प्र ara.

## Other signs

(anusvara) shows nasalization: कं kan. : (visarg) shows a weak aspiration: क: $k a^{\prime}$. Q (viram) shows the absence of the inherent $a$ : क् $k$. However, the inherent $a$-sound of the last consonant letter of each word is not pronounced, unless there is a viram. If a word ends with an $a$ vowel, OT $-\bar{a}$ is written.

Reading and punctuation Since the top of every Devanagari letter consists of a horizontal stroke, the letters of each word appear to be connected by a single line. The mark [1] is equivalent to a period, and 〔II〕 is used at the end of a text.

## Numerals

| $\}$ | 2 | $३$ | $\gamma$ | 4 | $\xi$ | 1 | $<$ | $\varrho$ | 0 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

## Tamil Script

The four scripts of Tamil，Telugu，Kannada， and Malayalam are called Southern Indian scripts of the Dravidian group．Generally they are rounded in form，though their struc－ tures are the same as those of the Northern Indian scripts．Tamil script is representative of the Dravidian scripts，but unlike the others， it has neither conjunct consonants nor aspirat－ ed letters．A distinct script known as Tamil Granta contains these letters，which are needed to write Sanskrit and Pali（Indic／Indo－ European）．Ordinary Tamil script，therefore， has a very lucid system．


## Consonants

| $\boldsymbol{\infty}$ | $\ldots$ | ¢ | ஞ | ᄂ | 50 | ¢ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ka，ga | nga | cha，sa | nya | $t a, d a$ | na | ta，da |  |  |
| $\sqcup$ | ம | 山 ！ | ๑ | வ $\varphi$ | or | D |  |  |
| $a, b a$ | ma | $y a r a$ | $l a$ | va la | a la | ra |  | na |

Additional consonants for borrowed words：

| $\mathscr{D}$ | ஷ | ๓ | ஹ | க゙q |
| :--- | :--- | :--- | :--- | :--- |
| $j a$ | $s a$ | $s a$ | $h a$ | $k s a$ |

## Vowel signs



For the letter நந $n a:$ நб $n a \vec{a}$ ，நி $n i$ ，நீ $n \bar{i}$ ， நு $n u$ ，நூ $n \bar{u}$, நெ $n e$ ，நே $n \bar{e}$, ஞந nai，நொ no， நேт nō，நநெ nau．
The letter $\pi r a$ becomes $\pi$ when it is not to be confused with the $-\bar{a}$ sign：if $r i$ ， $\mathrm{f} r \bar{l}$ ．
The succeeding sign $\pi-a u$ is the same form as the letter м $l a$ ．

Irregular forms of the $-\bar{a},-o$ ；and $-\bar{o}$ signs：
ண $n a \rightarrow$ ண $n \bar{a}, 6 \ldots n$, ணே $n \bar{o}$

ø $n a \rightarrow$ ø $n \bar{a}$, Øெ no，ஞே $n \bar{o}$
Irregular forms of the $-u$ and $-\bar{u}$ signs：

ச $c h a$ ，சு $c h u$ ，சூ $c h \bar{u}$ ட $t a$ ，（C）$t u$ ，（B）$t \bar{u}$
ч $p a$ ，ц $p u$ ，ц $p \bar{u} \quad$ ம $m a$ ，மை $m u$ ，மூ $m \bar{u}$
ш $y a$ ，ц $y u$ ，щை $y \bar{u}$ ォ $r a$ ，ரூ $r u$ ，厅ூ $r \bar{u}$
வ $v a$, வு $v u$ ，ூ $v \bar{u} \varphi l a, ழ ฺ l u$ ，ழை $l \bar{u}$
↔ $l a$ ，厅ூ $l u$ ，ஞூ $l \bar{u}$
Five additional consonants do not change their forms with $-u$ and $\bar{u}$ ，but $\rightarrow$ or－0 is
 Irregular forms of the－ai sign：ண na $\rightarrow$
 の $n a \rightarrow$ бठा nai．
There are no irregular forms for the $-e,-\bar{e}$ ， and $-a u$ signs．

An important sign $\dot{\dot{x}}$ is a very important sign in Tamil script，for it shows the absence of the inherent $a$－vowel in consonants：क $k a \rightarrow$ $\dot{க} k$ ．In contrast to other Indian scripts，this sign is often used to denote the absence of the final vowel sound and to make conjunct consonants in ordinary Tamil sentences，where special conjunct－consonant letters are not used：விட்டான் viṭtān．In the other Indian scripts this sign（hasanta）used for showing the absence of the inherent $a$－sound in consonants seldom appears in ordinary sentences．

Reading and punctuation Tamil script runs from left to right on a horizontal line，with a space between each word．Punctuation is now the same as in English．

## Numerals

Tamil numerals have no sign for zero；thus， ச्ర斤 கூM N1D 1980．Now only Arabic figures are used．

## §20．WRITING \＆ALPHABETS

## Tibetan Script

Tibetan script is descended from the Indian scripts and can be understood by using the principles of the Indian writing system． Since the Tibetan language is monosyllabic， however，the spelling construction in Tibetan script is different from that in Indian scripts， which are used to represent polysyllabic lan－ guages．

${ }^{\boxed{ }} \boldsymbol{J} a$ is the only independent vowel．
There are also five additional letters for borrowed words：


The forms of these cerebral letters are the reverse of those of the similarly pronounced dental letters that appear in the table above．

## Vowel signs

For the letter $\eta k a$ ：गो $k i$ ，गु $k u$ ，市 $k e$ ，र्ग $k o$ ． Independent vowels can be shown by attaching these vowel signs to the letter $\mathbb{W}$ ： ฟे $i$ ，जु $u$ ，जे $e$ ，जّ $o$ 。
In Tibetan originally there were no long vowels，but when they are necessary for San－ skrit or other languages，$\{h a$ is written small


Conjunct consonants Three preceding con－ sonants（ ${ }^{5} r a$ ，이 $l a$ ，and 자 $s a$ ）are written
above succeeding consonants：品lka，桸 ska． A preceding $\bar{x} a$ changes its form to $\overline{\text { O}}$ ：$\ddagger$ rka（but $\frac{1}{\xi}$ rnya）．
Succeeding consonants（나 $y a, ~ ₹ r a$ ，마 $l a$ ， $\$ w a$ ，and $5 h a$ ）are written beneath preceding consonants：句 kla，号gha．A succeeding ya changes its form to,$~=r a$ to, and $\stackrel{4}{ } w a$

Other conjunct consonants：用 $k s h a$ ，司 $n g k a$ ， 훙 nna，気 nda，会 ddha．

Reading，other signs，and punctuation Tibetan script runs from left to right on a horizontal line，with a special sign［＇〕（tseg）placed between each syllable．A Tibetan syllable consists of from one to four letters，of which one is basic．Signs of vowels and consonants are attached to the basic letter，and the other
 If a syllable is to end in an $a$ sound，$q$ is added at the end： 5 四 dag，but 月取＇$^{\prime}$ dga．
Tibetan pronunciatiors frequently do not reflect their spellings due to the silence of all consonants except the base：for example， ＂馬；＇is pronounced gye though it is spelled $b a-r g y a-d a$ ．Such spellings reflect the fact that Tibetan spelling has changed very little in the 1,300 years since the 7 th century when Tibetan script originated．


A postage stamp from Bhutan．

〔I〕 was a comma，and（II］was a period． Nowadays，〔，〕 and 〔．〕 are used．
0 or was an ornament placed at the beginning of a text or sutra．ï was placed at the beginning of written charms．

## Numerals

| ワ | $२$ | ₹ |  | 4 | $s$ | 2 | 5 |  | 0 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

## Chinese Characters

Chinese characters（sometimes called picto－ grams or ideograms）are unique because of their special system of construction，their long history，their irregular pronunciations， and the many thousands which are used．

Construction Each Chinese character consists of one or more elements．Those consisting of one element are generally pictographic characters：月（moon），女（woman），山（moun－ tain），木（tree）．A few are symbolic：三 （three），上（above），本（origin；the character represents the base of a tree）．
In most characters consisting of two or more elements，one element indicates the pho－ netic value and the other the general category． Elements are juxtaposed in various ways： right and left，above and below，around and center，and so on：

裹 $r i($ reverse $)=$ 衣（cloth）+ 里 $r i$
袋 $t a i($ sack $)=$ 衣（cloth）+ 代 $t a i$
Some characters are produced by two or more pictographic elements：
明（bright）$=$ 日（sun）+ 月（moon）
森（forest）$=$ 木（tree）$+木$（tree）+ 木（tree）
困（be in trouble）$=$ 木（tree）growing in a $\square$（box）

Three forms There are three forms of Chi－ nese characters in general use．Original－form characters on the whole contain more strokes and are more clearly pictorial．They have hardly changed at all since early times． Japanese characters for daily use（called the Toyo Kanji）are of simpler construction．The most simplified forms are those developed on the mainland in recent years to speed up the educational process．Some characters in all three systems are the same．The chart gives examples of characters that differ．

| Forms |  |  | Sounds |  |  | Def． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Orig． | Jap． | Simp． | Chinese | Japanese K | Korean |  |
| 廣 | 広 | $\Gamma^{2}$ | kuang | $\underset{\text { hiro-i }}{\text { ko }}$ | kwang | wide |
| 與 | 与 | 与 | $y u$ | yo ata－eru | yo | give |
| 習 | 習 | 习 | shi | shu nara－u | sup | learn |
| 闆 | 闘 | 斗 | tou | to <br> tataka－u | thu | fight |
| 專 | 専 | 专 | chuan | sen moppa－ra | chon | solely |
| 勸 | 勧 | 劝 | chhuan | kan susu－meru | kwon | advise |
| 讀 | 読 | 读 | tou | $\begin{aligned} & \text { doku } \\ & \text { yo-mu } \end{aligned}$ | tok | read |

Sounds Chinese characters are read with sounds that vary according to the language or dialect which uses them．In Japanese most characters have two or more sounds；＂On＂ sounds are derived from original Chinese； ＂Kun＂sounds express native Japanese words．

Meanings The meanings represented by Chi－ nese characters are generally constant，despite the varying pronunciations given them in different languages．Some have of course changed due to historical influences．

Reading and punctuation Chinese characters are traditionally written from top to bottom in a vertical line that shifts from right to left， but nowadays many texts are written from left to right on a horizontal line．In Taiwan articles in the same newspaper may be written on a horizontal line from right to left or from left to right with no indication．There are no spaces between words．The mark $[0]$ is a period，and $[$,$] is a comma，but［．］$ and $〔, 〕$ are also used in horizontal sentences．

## Numerals

$$
\begin{array}{cccccccccccc}
\cdots & \text { 二 } & \text { 二 } & \text { 四 } & \text { 五 } & \text { 分 } & \text { 七 } & \text { 八 } & \text { 十 } & \text { 白 } & \text { 下 } \\
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 100 & 1,000
\end{array}
$$

Arabic figures are now commonly used when Chinese characters are written horizontally．

## Arabic Script

Arabic script may be considered Moslem writing, for the area employing it coincides with the area of Moslem influence. The Moslem holy book, the Koran, is usually written and read in Arabic. Arabic is written with twenty-eight letters and is read from right to left on a horizontal line.

Alphabet The chart on the right shows the Arabic alphabet. There is no distinction between capitals and small letters, but there are four forms, independent, initial, medial, and final, determined by where the letter appears in a word. Only the six letters $1,2, j$, $\jmath, j$, and $g$ have no medial forms because they can only be joined to a preceding letter. This also means that their initial forms are the same as their independent ones, and that following letters are always written in an initial or independent form.

Vowel signs In Arabic, vowel signs are not usually written, but when needed, can be expressed as follows:

Short Example Long Example


Two diphthongs are: $\quad \mathbf{-}-a i$ and,$-a u$.
Other signs shows the absence of a vowel: كَ kassara. indicates a glottal stop on $1, ي$, and, .

Ligatures The many ligatures used in Arabic script make it a difficult language to learn to read. In printing, $\quad \searrow(l+a)$ and $\quad \partial(t+h)$ are used frequently.

| Inder. <br> FORM | Inittal FORM | Medial FORM | Final FORM | Phonetic value | Numer Value |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 |  |  | 1 | $a$ | 1 |
| ب | ! | * | $\because$ | $b$ | 2 |
| $\because$ | ; | $\ddot{\square}$ | $\because$ | $t$ | 400 |
| ث | ; | * | ث | $t$ | 500 |
| T | $?$ | ? | て | $j$ | 3 |
| C | > | $\cdots$ | C | $x$ | 8 |
| - | > | $\dot{\boldsymbol{*}}$ | C | $k h$ | 600 |
| 2 |  |  | $\lambda$ | $d$ | 4 |
| 3 |  |  | $i$ | dh | 700 |
| $\bigcirc$ |  |  | J | $r$ | 200 |
| j |  |  | j | 2 | 7 |
| س | $\sim$ | $\sim$ | $v$ | $s$ | 60 |
| ثن | is | ¢ | نّ | sh | 300 |
| $ص$ | $\sim$ | - | ص | $s$ | 90 |
| ض | $\dot{\square}$ | $\dot{\sim}$ | ص | $d$ | 800 |
| b | $b$ | $b$ | 12 | $t$ | 9 |
| b | $b$ | b | ¢ | $z$ | 900 |
| $\varepsilon$ | $\varepsilon$ | * | $C$ | ['] | 70 |
| $\dot{\varepsilon}$ | $\dot{\text { ¢ }}$ | $\dot{\text { i }}$ | C | $g h$ | 1,000 |
| ف | ; | 2 | ف | $f$ | 80 |
| ق | \% | 2 | ق | $q$ | 100 |
| 5] | 5 | $\delta$ | 4 | $k$ | 20 |
| $J$ | 1 | $\downarrow$ | $\downarrow$ | $l$ | 30 |
| P | * | $\star$ | $\stackrel{+}{+}$ | $m$ | 40 |
| j | ; | - | $\dot{ن}$ | $n$ | 50 |
| - | $\Delta$ | $p$ f | 4 | $h$ | 5 |
| 9 | , |  | g | ${ }^{w}, 4$ | 6 |
| $\checkmark$ | : | . | ي | y,i | 10 |

Numerals Arabic figures are written from right to left, but the figure written to the left shows the higher value: rr 23.

$$
\begin{array}{cccccccccc}
1 & Y & ץ & \varepsilon & 0 & 7 & \vee & \wedge & 9 & 0 \\
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 0
\end{array}
$$

