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To the Smithsonian Institution  
from the author.

# STANDARD ALPHABET

FOR

## REDUCING UNWRITTEN LANGUAGES AND FOREIGN GRAPHIC SYSTEMS

TO A

### UNIFORM ORTHOGRAPHY IN EUROPEAN LETTERS.

By DR. R. LEPSIUS,

PROFESSOR AT THE UNIVERSITY, AND MEMBER OF THE ROYAL ACADEMY, BERLIN

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k	g	ñ	χ	χ̂		í
k	g	ñ	χ̂	χ̂	y	l
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RECOMMENDED FOR ADOPTION BY  
THE CHURCH MISSIONARY SOCIETY.

LONDON:  
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## ADVERTISEMENT.

THE need of a fixed system of orthography induced several of the missionary societies of London, a few years ago, to agree upon "Rules of reducing unwritten languages to alphabetical writing in Roman characters." These Rules, though imperfect, have been already applied with success to several African languages. The societies were assisted in this work by the late Professor Lee of Cambridge, by Mr. Norris of London, and by Professor Lepsius of Berlin; but feeling it to be necessary for the establishment of any *standard* system that an alphabet should be presented in a more complete form, and that the scientific principles should be explained upon which it was constructed, Professor Lepsius, at their request, kindly undertook this work, and has furnished the following admirable treatise, which will prove, it is hoped, an invaluable help to missionaries. The clear and scientific exhibition of vocal sounds which it contains will relieve Missionaries from many of their first difficulties in studying a foreign language, and will spare future translators much painful uncertainty respecting the powers of the letters which they employ. It has therefore been adopted by the Church Missionary Society as A STANDARD ALPHABET.

It is not expected that those who have already adopted a different system of orthography will at once conform to all the

recommendations of Professor Lepsius, and in some minor points the genius of a language may possibly require a departure from the general standard. But such exceptions need not annul the *standard* character of this alphabet as one to which all parties may refer. Attention is particularly directed to the observations of Professor Lepsius upon this point at page 23.

Founts of letters and matrixes are provided for printing according to this alphabet, and though its adoption may thus involve in the first instance some trouble and expense, these will be counterbalanced by the great and permanent advantage of a fixed orthography.

The object of this treatise concerns not only missionaries, but also the interests of the natives whose language is to be reduced to writing. It is most desirable that a nation should be furnished with an alphabet combining simplicity and precision to the utmost degree in which they are attainable. The art of reading will be thus greatly facilitated, and the natives will themselves teach one another to read and write without the perpetual aid of European teachers. In illustration of this remark, we may refer to the following instances: — In West Africa the Vei tribe invented a syllabic alphabet, in which every sign had its fixed sound, and the people taught one another to write without the aid of European teachers or the knowledge of European alphabets. Similar instances of natives teaching one another to read and write by a syllabic alphabet have occurred among the Indians in America. In New Zealand a very simple alphabet was carefully prepared by Professor Lee, and many tribes learned to read and write by the help of instructed natives before they were visited by Europeans.

In respect of Africa it is especially important to take every step which may facilitate the mutual instruction, and supersede the labours of European teachers. In this way only can we hope for the evangelisation of that vast continent.

It is a matter of much satisfaction, that in this, as in other instances, science lends its aid to the Christian zeal of missionaries for communicating to mankind the highest benefits; and the work is commended under this aspect to the blessing of Almighty God for the furtherance of the Kingdom of Christ among the nations of the earth.

H. VENN, B.D. HON. SEC.	} <i>Church Missionary Society.</i>
J. CHAPMAN, M.A. SEC., Late Missionary in South India, and Prin- cipal of the Syrian College, Travancore.	
H. STRAITH, HON. LAY SEC.	
C. GRAHAM, LAY SEC., Late Persian Interpreter to the Com- mander-in-Chief in India.	

HAVING been concerned in the preparation of the Rules, &c., referred to above, which have been successfully employed in our West African languages — where the want of a uniform system was especially felt, — we express our cordial approval of this treatise, in which Professor Lepsius clearly explains the scientific principles upon which a *standard* alphabet must be constructed, and renders it, in its complete form, capable of the most extensive application.

JOHN BEECHAM, D.D. SEC.	} <i>Wesleyan Missionary Society.</i>
ELIJAH HOOLE, SEC., Formerly Missionary in South India.	

(Extract from a letter to the author.)

Société des Missions Evangéliques.

Paris le 7 juin 1855.

„J'ai le plaisir de vous annoncer que dans sa séance mensuelle d'hier, le Comité de la Société des Missions a décidé d'envoyer à nos Missionnaires au Sud de l'Afrique le "*Standard Alphabet*" et de recommander à leur plus sérieuse attention le système qui est proposé pour arriver à une manière uniforme d'écrire les langues étrangères qui n'ont point encore de littérature.

En outre, il désire vivement qu'après avoir étudié ce système les Missionnaires de notre Société puissent en faire l'application à la langue Séchuana.

Il serait utile pour cela, que notre Comité pût avoir une vingtaine d'exemplaires de la traduction anglaise du *Standard Alphabet*, pour les envoyer au Sud de l'Afrique“.

Au nom du Comité:  
**GRANDPIERRE,**  
 Directeur.

London Missionary Society.

London, June 28<sup>th</sup> 1855.

The importance of the object proposed by Dr. Lepsius will be deeply felt by every individual conversant in any degree with the difficulties to be encountered in the formation of a language previously unwritten, and with the want of harmony which has hitherto been found in such attempts. I can-



not therefore but rejoice in the result of Dr. L's close and profound attention to this subject, as exhibited in his pamphlet, and I most earnestly hope that it may greatly tend hereafter to secure substantial agreement, and if possible, uniformity in the practice of Christian Missionaries who are labouring to give the Word of God to tribes and nations among whom the symbols of thought have been previously unknown.

ARTHUR TIDMAN,  
Foreign Secretary L. M. S.

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#### Moravian Missions.

London, June 1855.

I beg to give my cordial assent to the general principles which Professor Lepsius has so ably sketched in his Treatise. That the adoption of his system, however modified in some of its details, will be of the greatest service to Missionaries in every part of the world and especially to English Missionaries, can hardly admit of a doubt. Had such a system been originally applied to the languages of the Greenlanders and Esquimaux and to those of the Indian tribes of North and South America, much uncertainty and difficulty would have been avoided.

P. LA TROBE,  
Secretary in England to the  
Moravian Missions.

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Barmen, den 30. Juli 1855.

Die Deputation der Rheinischen Missionsgesellschaft erklärt hiermit ihre Zustimmung zu den von Herrn Prof. Lepsius in Berlin in seiner Schrift „das allgemeine lin-

guistische Alphabet“ niedergelegten Grundsätzen der Orthographie und wird demgemäfs ihre Missionare für deren linguistische Arbeiten instruiren.

Namens der Deputation:  
Insp. WALLMANN.

[Barmen, 30<sup>th</sup> July 1855. The Committee of the Missionary Society of the Rhine declares hereby its assent to the principles of Orthography laid down by Professor Lepsius in his treatise on the Standard Alphabet, and will give directions accordingly to its Missionaries for their linguistic labours. For the Committee: Inspector Wallmann.]

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Calw, Württemberg den 29. Oct. 1855.

Der Unterzeichnete muß, auch abgesehen von dem umsichtigen Fleiß, womit dieses Standard Alphabet entworfen ist, schon um des harmonischen Zusammenwirkens willen, dringend wünschen, daß wenigstens auf diesem Theile des Missionsgebietes Uniformität zu Stande komme, und schließt sich darum demselben mit Freuden an.

Dr. CHR. G. BARTH,  
Vorstand des Calwer Verlags-Vereins.

[Calw, Württemberg, 29<sup>th</sup> October 1855. The Undersigned, besides acknowledging the care and completeness of the views, upon which this Standard Alphabet is founded, cannot but earnestly desire for the sake of harmonious cooperation, that Uniformity may be attained at least in this part of the Missionary field, and therefore begs to give it his cordial assent. Dr. Chr. G. Barth, Director of the Calw. Publishing Union.]

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## Evangelische Missions-Gesellschaft zu Basel.

Auszug aus dem Protokoll vom 9. Nov. 1855.

„Die Committee der evangelischen Missions-Gesellschaft hat  
 „in Anerkennung der großen Wichtigkeit übereinstimmen-  
 „der Grundsätze bei Feststellung des Alphabets bisher nicht  
 „geschriebener Sprachen besonders auf dem Africanischen  
 „Sprachgebiet beschlossen, das von Hrn. Prof. Dr. Lepsius in  
 „Berlin aufgestellte System der Orthographie zu adoptiren und  
 „den in ihrem Dienst stehenden Missionaren dasselbe zu all-  
 „mählicher Einführung zu empfehlen.“

Namens der Committee:

JOSENHANS,

Inspector.

[Evangelical Missionary Society at Basle. Extract from protocol of 9. November 1855. „The Committee of the Evangelical Missionary Society, acknowledging the great importance of uniform principles in fixing the Alphabet of previously unwritten languages, particularly among the African races, has resolved to adopt the system of orthography proposed by Prof. Dr. Lepsius of Berlin, and to recommend it to the Missionaries employed by this Society for gradual introduction.“ For the Committee: Josenhans, Inspector.]



THE endeavour to establish a uniform orthography for writing foreign languages in European characters has both a *scientific* and a *practical* aim. The *scientific* aim is to bring these languages with their literature more completely within our reach, and to increase our knowledge of the nations to which they belong. The *practical* aim is to facilitate the propagation of the Christian faith and the introduction of Christian civilisation among heathen nations, especially such as have no written language, by furnishing them with a suitable alphabet.

The latter object is most intimately connected with the efficiency of all Christian missions. It is in this quarter that attention has been lately directed afresh to a want long felt in science, often suggested, but never yet satisfied, namely, the want of a *standard* alphabet universally current and applicable to all languages. In the Mission field, without doubt, the first decisive steps will be taken for the actual introduction of such a graphic system.

*The Scientific Object of this Alphabet.*

One of the grandest aims of modern science, and one which it has only lately been in a position to attempt, is the attainment of an accurate knowledge of all the languages of the earth. The knowledge of languages is the surest guide to a more intimate acquaintance with nations themselves, and this not only because language is the medium of all intellectual inter-communication, but also because it is the most direct, the most copious and lasting expression of the whole national mind.

From the relations of separate languages, or groups of languages, to one another, we may discover the original and more or less intimate affinity of the nations themselves. We learn, for instance, by this means, that the Indians, Persians, Greeks, Romans, Slavonians, and Germans form a catenarian series whose parts are far more intimately connected with one another than with any link of the chain, which consists of the Babylonians, Hebrews, Phenicians, Arabs, Abyssinians; and that the Egyptians, and the African tribes on their north-western and south-eastern boundaries, are much more intimately allied to both these groups, than to the rest of the African nations of which those who inhabit the continent to the south of the Equator form another such circle of nations, all closely related to each other.

In like manner will the chaos of the nations in Asia, America, and Polynesia, be gradually resolved into order, by the aid of linguistic science, the last aim of which is the investigation and comparison of all the languages of mankind.

In order to learn any language, we must be able to read and write its primary elements, *the sounds*. This we can only do in so far as we are able to express them in our own alphabetical characters; and sounds which do not exist in our own language must be described by other methods. Every grammar of a foreign language must resolve these problems in its first pages. But since the orthographies of European nations vary considerably among themselves, grammarians of different nations represent the sounds of one and the same language by different letters.

For example, the same sounds will be expressed

by the Germans	<i>u,</i>	<i>dsch,</i>	<i>sch,</i>	<i>ch.</i>
„ English	<i>oo,</i>	<i>j,</i>	<i>sh,</i>	—.
„ French	<i>ou,</i>	<i>dj,</i>	<i>ch,</i>	—.
„ Italians	<i>u,</i>	<i>g,</i>	<i>sc,</i>	—.
„ Spaniards	<i>u,</i>	—,	—,	<i>j</i> or <i>x.</i>
„ Dutch	<i>oe,</i>	—,	—,	<i>g</i>

The most difficult task, however, arises when we attempt to represent the sounds which have no corresponding signs in our own alphabet, and when we must therefore introduce new characters or apply diacritical marks to our own letters. The French and German languages distinguish only 20 simple consonantal sounds, and the English 22, it is evident that these alphabets are not sufficiently extensive to represent the sounds of the Asiatic languages, among which the Arabic distinguishes and represents 28 consonants, the Turkish 33, the Sanscrit 34, the Hindostanee 35, or, including the aspirates, even 47. Still less is the European alphabet capable of furnishing a comprehensive system including all the essential differences of sound, which amount to more than 50 in number, in all these various languages.

But since, generally speaking, each grammarian has only occupied himself with one language, or with a small circle of languages, he has been satisfied with explaining the symbols he has employed, and the reasons of their selection, without reference to fellow labourers, or to predecessors in the same field; especially if belonging to different European nations, and therefore starting from different bases.

Hence the diversity of signs for one and the same sound in different languages, or even in the same language, is continually increasing; and has at length become so great, that the translator of Oriental works, the Tourist, the Geographer and Chartographer, the Naturalist, the Ethnographer, the Historian, in short every one who has to do with the names and words of foreign languages, and above all others the *Linguist*, who studies and compares languages, find themselves entangled in an intolerable confusion of orthographic systems and signs, from which each individual finds it impossible to extricate himself.

It is therefore only in a comprehensive survey of the whole question that a solution of the problem will be found. We must start with that which is common to all systems, following their general direction, excluding arbitrary and isolated expe-

riments, keeping in view all the theoretical and practical difficulties of the case, and directing all our endeavours to the construction of a complete and definite system founded on the nature of phonetic organism. This is the *scientific* problem of a universal alphabet.

It is scarcely necessary to state that we do not here advocate any change in the orthographies of European languages. Isolated attempts to alter established orthographies cannot produce any practical results nor render any aid to science.

*The Practical Object of this Alphabet.*

The aboriginal tribes of Africa, America, Australia, and Polynesia, are almost entirely destitute of written language. This fact alone characterises them as barbarous and uncivilised. And if there be no nobler calling for the civilised and Christian world than to impart to all mankind the treasures of religious knowledge and human culture so freely entrusted to their hands by Divine Providence, — and if the obligation of this calling, now more powerfully felt than ever, rests especially on those associations of high-minded Christian men, which have taken their name as *Missionary Societies* from this highest of all missions; — then it is their especial duty to furnish destitute nations, first of all, with that most important, most indispensable means of intellectual, moral, and religious culture, *a written language*. For universal experience has long taught that it is not sufficient for the missionaries to learn the language of the natives in order to introduce Christianity permanently into any nountry. Only where the Word of God is read by the people themselves, and where a whole people are made susceptible of the spirit of Christianity by the distribution of the Bible and of Christian school-books, can a rapid, a deep and a lasting work be hoped for. *Bible Societies* must go hand in hand with *Missionary Societies*.

Hence for many years the committees of the principal Mis-



sionary Societies have regarded it as an important object to reduce to writing the languages of all the nations to which their missionaries have penetrated, and to prepare in all these languages translations of the sacred Scriptures, as well as Christian tracts. This presupposes an accurate and scientific study of those languages, and the preparation of grammars and dictionaries, which, in order to be clearly understood, must be founded upon a comparison of the the foreign with the European languages, and upon the latest improvements of linguistic science.

It was a sense of the necessity of such linguistic studies which induced the Church Missionary Society to send the Rev. S. W. Koelle, a missionary especially adapted to the work, to Sierra Leone, mainly to study the languages of the thousands of manumitted slaves which are brought together from all parts of Africa at that point. The results of this exceedingly important linguistic mission are a comparative vocabulary, comprising more than one hundred distinct African languages, and carefully prepared grammars of two most important languages — the “*Vei*” and the “*Bornu*.” These works are now being published by the same Missionary Society, in order to form the foundation for future translations of the Bible and other useful books into those languages.

The various Bible Societies have made efforts on the largest scale to effect the same object. The *British and Foreign Bible Society* of London had published, down to the middle of the past year, 26 millions of Bibles, or parts of the same, in 177 different translations. These translations embraced 150 different languages, of which 108 belonged to countries beyond the bounds of Europe, viz. 70 to Asia, 17 to Polynesia, 8 to America, and 13 to Africa<sup>1</sup>.

<sup>1</sup> See the last Report of this Bible Society, and more on the same subject in the most valuable and interesting work of *Samuel Bagster: The Bible of every Land, a History of the Sacred Scriptures in every language and dialect into which translations have been made; illustrated with specimen portions in*

It was natural that the European system of writing should be used for all those languages which had no system of their own. But here the same question arose as in linguistic science. Which orthography ought to be used? Was it advisable to force upon those nations to which the Bible was to be presented as their first reading-book, the English orthography, which is complicated, irregular, and singular even in Europe? Was it suitable that those nations should be compelled to learn to read and write for all future time after this fashion? And according to what principles should those sounds be expressed which are neither found in the English alphabet nor in any other European system?

As, in these respects, there was no general law or authority, every missionary who had such a translation to prepare struck out a way for himself, and sought, according to his own fancy, or from a very confined view of the case, to solve the difficulty. If we examine the long catalogue of Bibles printed in Latin characters we shall find the most multifarious systems of letters employed, often in cognate languages, and even in one and the same language. Sometimes difficult and unintelligible groupings of consonants are employed as representations of simple sounds; at other times a multitude of new and unexplained diacritical signs are employed; and often a refuge has been sought in the complete rejection of all diacritical marks, and thus the correct expression of the language has been sacrificed. The great and increasing confusion resulting from this arbitrary mode of proceeding must be apparent.

When the publication of the New Testament and Psalms in the language of the African *Tsuana* (Betchuana, Betjuana, Sechuana) was lately completed by the London Missionary Society, the Secretary of the Church Missionary Society expressed to the Secretary of the Paris Society the joy which

*native characters, series of alphabets, coloured ethnographical maps, tables, indexes, etc.* London Sam. Bagster and Sons. 1851. 4to. In this book 247 different languages are noticed in connexion with Bible translations.

he felt when he thought of the rich blessings which would thence accrue to that people, and to the labours of the French missionaries scattered among them. "But," replied his sympathising friend, "is it not sad, that these thousands of copies already published are entirely unavailable and sealed to our French missionaries who labour among the same people, and to all those who have received instruction from them, simply because they make use of another orthography?"

To avoid such palpable evils in future is the purpose of the proposed standard alphabet.

In Asia, the birthplace of alphabets, the chief nations already possess a written literature in their own native characters. This has afforded to European colonists and rulers, as well as to missionaries, the means of exercising an intellectual influence over those nations. The English Government in India therefore generally makes use of the alphabets most extensively employed in those regions, viz. the Persian and the Devanagari letters, in order to govern and instruct the nations subject to their authority. The Bible Societies have also published more than 40 translations of the Sacred Scriptures in those foreign characters. But, nevertheless, it has been often and forcibly urged, that many important advantages would arise from the substitution of a European for all the native alphabets. For besides the superiority which the uniform division of the syllable into vowel and consonant gives to the European alphabet over the unwieldy Syllabic Alphabets of Asia, and still more over the Chinese Word-Alphabet, with its many thousands of symbols, every new alphabet constitutes a natural and almost impassable barrier between foreign and European civilisation by materially increasing the difficulty of acquiring such languages, and of becoming acquainted with their literature.

Hence the introduction of the European characters for the Indian languages has been supported by the present Government, and Bible Societies have already published a number of

translations upon the same system. Commencements of the same kind have already been made in China by the Missionaries, and bid fair to succeed.

In every one of these instances the question recurred: Which European orthography is to be adopted? Which alphabetical system best harmonises the different European orthographies, and allows most easily of the application of diacritical signs to represent sounds not contained in the languages of Europe? To this practical question, our proposal endeavours to furnish the answer.

*What has been done by Science for the Solution of this Problem, up to the present Time?*

The want of a uniform orthography was first seriously felt with regard to the Oriental languages in the British possessions in India, where the study of those languages became a practical necessity. At the same time no country could better suggest a comprehensive discussion of this question; for here the two most perfect, and, at the same time, most opposite phonic and graphic systems, the Sanscrit and the Arabic, have met, and have been actually blended together in the Hindustanee alphabet. This alphabet being essentially Arabic, and expressing the different Sanscrit sounds by diacritical signs, we find here the problem, which we propose to ourselves in respect of the European graphic system, already fully and historically solved in the Arabic.

The first person who took a comprehensive view of these difficulties, and undertook their solution as a problem worthy of his special attention, was *Sir William Jones*, a man of great learning and cultivated mind. He was President of the Asiatic Society in Bengal, and opened the first volume of its Transactions, published in Calcutta in 1788, with an Essay "*On the Orthography of Asiatic Words in Roman Letters.*"<sup>1</sup>

<sup>1</sup> *Asiatic Researches*, vol. i. 1788, p. 1—56. The Essay was republished in the edition of his works, London, 1799.

He points out the desideratum in simple words<sup>1</sup>, and lays down, as the first principle, that the *orthography of any language should never use the same letter for different sounds, nor different letters for the same sound*<sup>2</sup>; he complains also of the great complication and perplexity of the present English orthography in this respect. He declares himself opposed to the doubling of a vowel in order to represent its length; and in reference to the *vowel-system* he adopts the Italian or German notation. This was one of the most important steps towards reducing the European alphabets to a uniform orthography.

In reference to the *consonants*, he complains principally of the mixing up of *Roman* and *Italic* letters in the same words.<sup>3</sup>

He justly admits (p. 13.) that the Sanscrit and Arabic alphabets represent the sounds of their languages so perfectly, that no character can be taken away from, or added to them, without manifest injury: and he unhesitatingly takes his stand not only

<sup>1</sup> The treatise begins: "Every man, who has occasion to compose tracts on *Asiatic* literature, or to translate from the *Asiatic* languages, must always find it convenient, and sometimes necessary, to express *Arabian*, *Indian*, and *Persian* words, or sentences, in the characters generally used among Europeans; and almost every writer in those circumstances has a method of notation peculiar to himself: but none has yet appeared in the form of a complete system, so that each original sound may be rendered invariably by one appropriated symbol, conformably to the natural order of articulation, and with a due regard to the primitive power of the Roman alphabet, which modern Europe has in general adopted. A want of attention to this object has occasioned great confusion in history and geography," etc.

<sup>2</sup> P. 7.: "Mr. Halhed (in his *Bengal Grammar*), having *justly* remarked, that the two greatest *defects* in the orthography of any language are the *application of the same letter to several different sounds, and of different letters to the same sound*, truly pronounces them both so common in English, that he was exceedingly embarrassed in the choice of letters to express the sound of the Bengal vowels, and even to the last was by no means satisfied with his own selection.

<sup>3</sup> P. 8.: "If anything *dissatisfies* me in Mr. Halhed's clear and accurate system, it is the use of *double* letters for the long vowels (which might, however, be justified) and the frequent intermixture of *Italic* and *Roman* letters in the same word; which both in *writing* and *printing* must be very inconvenient."

against the vain endeavour to represent *foreign* sounds by English letters, but also against the introduction of entirely new characters.

*He therefore recommends, as the only suitable and efficient method, the use of certain diacritical signs, especially such as had already been adopted by several savans of France and England.*

These views are throughout so sound and so well founded on practical experience, that even at the present time they command our full assent. If, nevertheless, the alphabet proposed by him was imperfect, this was owing partly to his defective knowledge of the general organism of sounds and of the distinct sounds to be represented, and partly to the imperfect application of his own principles.<sup>1</sup>

It is much to be regretted, that the distinguished scholar *Gilchrist*, who had published many valuable works on the Hindoostanee language, and had thereby gained great influence in India, did not become acquainted with the essay of Sir William Jones till too late to make use of the system in his own works<sup>2</sup>, as he afterwards wished he had done. It is principally owing to this circumstance, that the unsuitable English vowel-system according to which Mr. Gilchrist writes *ee* for *ī*, *oo* for *ū*, *öö* for *ǔ*, *ou* for *au*, was almost universally adopted in India.

It is only since 1834 that the correct principles of Sir William Jones have obtained in India the consideration due to their importance. This change was brought about by the critical inves-

<sup>1</sup> He took, for instance, the Arabic *ẖet* for an aspirate like the Indian *k*, and the Arabic *ẖāin* for a compound sound instead of a simple one. He considered the Arabic Linguals as so similar to the Indian Cerebrals that he employed the same characters for both, although they differ materially, and in the Hindustanee are placed by the side of one another. He also gives to the letter *h* different significations accordingly as it stands alone or in connection with other letters, as *sh* (= *š*), *th* (= *θ*), *ch* (= *č*), *ch'h* (= *č'*). In the same manner he assigns different values to the letters *c*, *s*, and others.

<sup>2</sup> *Grammar of the Hindoostanee Language*, by John Gilchrist. Calcutta, 1796, p. 1. His *English and Hindoostanee Dictionary* had been published in 1787.

tigations and influential exertions of *Sir Charles Trevelyan*<sup>1</sup>, who was, for many years, connected with the administration of India. He contended successfully against the English vowel-system, supported by the works of Mr. Gilchrist, and secured the more general adoption of the German, Italian, or ancient Latin method, as proposed by Sir W. Jones. The former system may now be regarded as antiquated in India.<sup>2</sup>

But though the exertions of Sir W. Jones and Sir C. Trevelyan have introduced a more correct *vowel*-system, it yet remains that the same principles be applied to the *consonant*-system, in which there has been no amendment since the time of Sir W. Jones<sup>3</sup>, although it has been equally needed.

In the meantime an event occurred in France, which directed the attention of the learned to the necessity of establishing a

<sup>1</sup> *The Application of the Roman Alphabet to all the Oriental Languages, contained in a series of papers, written by Messrs. Trevelyan, J. Prinsep, and Tytler, the Rev. A. Duff, and Mr. H. T. Prinsep, and published in various Calcutta periodicals in the year 1834; from the Serampoor Press, 1834. The following three papers: Defence of Sir William Jones' System, Calcutta, 27 Aug. 1834; Circular Letter addressed by the Originators of the General Application of the Roman Letters to the Languages of the East, Calcutta, Nov. 1834; The Romanizing System, Calcutta, 1836, have lately been reprinted under the title: Papers originally published at Calcutta in 1834 and 1836, on the application of the Roman Letters to the Languages of Asia. London, Longman, 1854.*

<sup>2</sup> "During the twenty years which have since elapsed, this application of the Roman letters has made silent but steady progress; and, besides its increasing use by the natives of India, it has been extensively adopted by Missionary Establishments, by teachers of Oriental languages in this country, and, almost without exception, by authors of works relating to the East, who desire to express Asiatic words in an exact and uniform manner." See Preface of the London edition of the above named essays of Sir Charles Trevelyan, 1854.

<sup>3</sup> Mr. *John Pickering* also adopted the *vowel*-system of Sir W. Jones in his *Essay on a uniform Orthography for the Indian Languages of North America*, but he retarded rather than advanced a correct system of *Consonants*. This Essay was first published by the Amer. Acad. of Arts and Sciences, of which he was a member; and also separately in Cambridge, U. S., 1820.

consistent system of transcribing foreign alphabets into European letters.

The scientific results of the famous Egyptian Expedition were directed to be published by a commission of the most distinguished scholars, appointed for that purpose. The Geographical Atlas, consisting of 47 maps of the largest size, contained nearly 5000 Arabic words. These were to be written in Latin letters, and upon an accurate and intelligible system. For this purpose special conferences were instituted in the year 1803, in which Messrs. *Volney*, *Monge*, *Bertholet*, *Langlès*, *Sylvestre de Sacy*, *Caussin*, *Lacroix*, *Baudeuf*, *Marcel*, and *Michel Abeyd* took part.

The first of these, *C. T. Volney* (who on account of his political services at a later period was made a Count by Napoleon, and a Peer by Louis XVIII.), had written in 1795 an Arabic grammar, under the title, *Simplification des langues orientales, ou méthode nouvelle et facile d'apprendre les langues Arabe, Persane et Turque, avec des caractères Européens, Paris, an III.* He here speaks of the advantage which the use of European letters affords in learning the Arabic language; and proposes a method for representing the Arabic alphabet in the Latin characters. This transcription was founded on no definite principles, but yet was guided by the correct feeling, that every simple sound should be represented by a single sign or character, a rule, from which he only deviated in one case, by writing *ai* for *e*. This led him to seek some simple signs to represent the three simple sounds not found in the Latin alphabet, viz. German *ch*, English *th* and *sh*. For the two first he chose the Greek letters  $\chi$  and  $\psi$ . but for the third he invented the entirely new character  $\varphi$ . All other foreign sounds he sought to represent by graphic modifications of the letters most nearly expressing those sounds, not indeed by the addition of disconnected marks of distinction, but by a change of the characters themselves, as for instance,  $\acute{a}$ ,  $\acute{e}$ ,  $\acute{a}$ ,  $\acute{z}$ .

The Commission of 1803 started upon this principle, and



adopted the system for the geographical maps, yet with a change of nearly all the single characters. This change aimed at simplification, but only substituted one arbitrary system in the place of another, and even gave up some material advantages of the first plan. The characters  $\chi$  and  $\theta$  were set aside for  $\mathfrak{k}$  and  $\mathfrak{t}$ , whereby these lettres were erroneously placed among the *explosive* letters; and the representation of the German *sch* by the simple character  $\varphi$ , which, though inconvenient, was right in principle, was given up for the inaccurate compound *ch*: and instead of  $\mathfrak{t}$ ,  $\mathfrak{d}$ , etc.,  $\mathfrak{t}$ ,  $\mathfrak{d}$ , were written. But they did not stop here; they introduced for the *Description de l'Égypte* an orthography which dispensed entirely with all diacritical signs; which on this account was both materially incorrect and decidedly antagonistic to the principle of using always a simple character for a simple sound.<sup>1</sup> Thus they wrote *ou*, *ey*, *kh*, *gh*, *ch*, for our *u*, *e*,  $\acute{\chi}$ ,  $\acute{\chi}$ ,  $\check{s}$ .<sup>2</sup>

With this method Volney himself could not be satisfied. He therefore took up the same subject again at a later period, and published in 1818 his well-known treatise: *L'Alphabet Européen appliqué aux Langues Asiatiques*." This title expresses more than the book contains. The first half of the volume is taken up with the investigation of those sounds which belong to the European languages, and shows that the writer possessed but little native talent for investigations of this nature.<sup>3</sup> The second

<sup>1</sup> Both transcriptions are placed by the side of the Arabic names in the *Index Géographique*, which forms vol. XVIII. of Pancoucke's edition.

<sup>2</sup> Vide p. 46.

<sup>3</sup> He discovers a difference between French *ée* or *ez* (*donné*, *donnez*) and the simple *é* (*armé*, *bonté*), and finds the former again in the German *eh* (*dehnen*), the latter in the German *besser*, or in the English *red*, *head*: s. p. 49 — 52. He pronounces the nasal in the German *Anker* as in the French *Ancre*, p. 59; the German *z* he resolves into *ds*, p. 83; and the Arabic  $\acute{\chi}$ ain he calls a *grassement dur*, in opposition to the *grassement doux* of the modern Greek  $\gamma$ , p. 100. The German *ch* in *ich* he places as a *soft* sound by the hard sound in *buch*, p. 103, etc., etc.

half treats exclusively of the *Arabic* Alphabet into the sounds of which he likewise does not penetrate very deeply. For the linguals he gives up the hooks, and adds instead a short line under each letter, viz.  $\underline{t}$ ,  $\underline{d}$ ,  $\underline{s}$ ,  $\underline{z}$ . The characters  $\mathcal{K}$  or  $k\grave{h}$  he changes again to  $\chi$ , and  $\mathcal{T}$  ( $=\mathcal{C}$ ) to  $\mathcal{t}$  or  $\mathcal{s}$ , and the character for the corresponding soft sound to  $\mathcal{z}$ . For *sch* he proposes a lengthened or old-fashioned  $s$ , viz.  $\mathcal{f}$ , or an inverted  $j$ ,  $\mathcal{f}$ ; while for  $\mathcal{h}$ ,  $\mathcal{g}$ ,  $\mathcal{p}$ , ( $=\mathcal{h}$ ,  $\mathcal{g}$ ,  $\mathcal{c}$ ) he retains the additions, although he changes their forms. The notations of the vowels also underwent changes. At the close, he makes an attempt to apply his system of notation to the Hebrew, and the first line of his Hebrew Lord's Prayer will give a good idea of the awkwardness of this third method of writing. It is the following (p. 209.):

abinw  $\mathcal{f}^i$   $\mathcal{b}^e$   $\mathcal{f}^{anim}$   $\mathcal{v}^o$   $\mathcal{q}^{adda}$   $\mathcal{f}^{em-k}^a$ .

No one of the three editions of Volney's system met with any approbation or adoption, because his proposal was based neither upon scientific nor upon practical principles, because it embraced in its field of view only the *Arabic* alphabet, and because it admitted no direct application to other languages and especially not to those of India.

His exertions, however, were not forgotten, as by his will he founded an annual prize to be conferred by the Institute of France. This legacy was designated: "*pour le meilleur ouvrage relatif à l'étude philosophique des langues,*" and at the same time the wish was expressed "*d'encourager tout travail tendant à donner suite et exécution à une méthode de transcrire les langues Asiatiques en lettres Européennes.*" This endowment, which was acknowledged by an Ordonnance of 1820, has produced many good results for the advancement of linguistic science, but it has conducted so little to the solution of the problem in question, that the French Academy finally determined to omit this subject in their Programme, and only to propose exercises on comparative grammar.<sup>1</sup> The system of Sir W. Jones, which had

<sup>1</sup> Compare *Mémoires de l'Institut de France*, Académie des Inscr. et Belles

proceeded upon more correct principles and upon a broader basis, was, indeed, occasionally alluded to by Volney, but never followed.

No language has a system of sounds more rich and regularly developed than the *Sanscrit*, or expresses them so perfectly by its alphabet. The old grammarians of India did not, indeed, invent the Devanagari characters, but they brought them to that state of perfection which they now possess. With an acumen worthy of all admiration, with physiological and linguistic views more accurate than those of any other people, these grammarians penetrated so deeply into the relations of sounds in their own language, that we at this day may gain instruction from them, for the better understanding of the sounds of our own languages. On this account no language and no alphabet are better suited to serve, not indeed as an absolute rule, but as a starting point for the construction of a *universal linguistic alphabet*, than that of ancient India.

Hence it is that the late progress in the solution of the alphabet-problem has been associated in Europe, as formerly in India, with Sanscrit studies; especially since these studies were made the foundation of the new science of comparative

Lettres, tome xiv., Paris, 1845, p. 7 seqq. In the year 1835 a book appeared by A. E. Schleiermacher: *De l'Influence de l'écriture sur le langage, Mémoire qui en 1828 a partagé le prix fondé par M. le comte de Volney, suivi de Grammaires Barmane et Malaïe, et d'un aperçu de l'alphabet harmonique pour les langues Asiatiques que l'Institut Roy. de France a couronné en 1827.* The author gives in the preface p ix seqq. a transcription of the Devanagari, the Bengal, and four Slavonic alphabets, with respect to an *Alphabet harmonique*, which he exhibits in the *Aperçu* mentioned on the title. But, as in both places of the book the reasons of this transcription are not developed, and as the complete Memoir on the Alphabet harmonique has hitherto not been published, we must abstain from offering any opinion of it. The peculiar division, however, in 16 *gutturales*, 12 *palatales*, 15 *sifflantes*, 16 *linguales*, 9 *labiales*, 9 *nasales*, and 16 *mélées*, and the 5 subdivisions of lettres *simples*, *variées*, *fortes*, *mouillées*, and *aspirées*, seem to indicate that the author starts from a physiological and linguistic basis different from that which we consider the correct one. At the same time, however, the principle of using simple signs for simple sounds is constantly observed.

Philology. Here *Bopp* took the lead. In the earlier editions of his *Sanscrit Grammar* he had still employed the German compounds *tsch*, *tschh*, *dsch*, *dschh*, *sch*, *ng*, *kh*, &c.; but later, in his *Comparative Grammar*, published in 1833, he introduced simple letters for all these sounds, and distinguished the various classes of sounds by certain uniform diacritical marks. This orthography was soon adopted in the very numerous school of German and other linguists, and may now be regarded as the historical basis upon which, on account of its intrinsic value as well as its extensive use in science, the future superstructure must be built. *H. Brockhaus*<sup>1</sup>, *Benary*, *Gorresio*, *Roth*, *Benfey*, *Böthlingk*, *Müller*, *Stenzler*, *Lassen*, and many others have adopted this principle, although, in particular instances, they have often differed among themselves as to the choice of the diacritical marks. But all these men had either the *Sanscrit* language alone in view, or at most those of the same family.

On the other hand, the *Semitic* scholars were equally exclusive, and generally retained the use of *sh*, *kh*, *gh*, *th*, *dh*, for our *š*, *ḫ*, *ḡ*, *ṯ*, *ḏ*. Yet some among them acknowledge the principle of *simple characters for simple sounds*, of whom we mention especially *Caspari* and *Fleischer*. The latter, an eminent scholar in the *Semitic* languages, and formerly himself a follower of the old method of writing, adopted in his *Persian Grammar*, published in 1847, the signs *ǰ*, *č*, *ḥ*, *ḫ*, *ǧ*, *š*, *ǰ̇*, instead of the double letters; as he had at an earlier period<sup>2</sup> chosen the Greek character *θ* for the English *th*.

After progress had thus been made by both parties acting independently of each other, it became necessary to discover a

<sup>1</sup> We mention particularly his Essay "*Ueber den Druck Sanscritischer Werke mit lateinischen Buchstaben, Leipzig, 1841*," in which he presents important considerations on the scientific advantage of printing large Sanscrit works in Latin letters.

<sup>2</sup> In his *Catalogue of the Arabic, Persian, and Turkish Manuscripts*, in the *Catalogus librorum manuscr. in bibl. senator. Lipsiensi*, by *R. E. Nauman*. Grimmæ. 1838. 4°.

general system which might comprehend the two most important, but at the same time most widely separated groups of the principal known languages. And it was evident that such a comprehensive system required a broader basis than any which had heretofore been proposed. That basis was to be discovered in the common ground from which both had started; namely, the *physiology of the human voice*, which is the common ground and standard, not only for the two above-mentioned groups of languages, but also for all the languages of the earth.

The human voice has its natural bounds, beyond which no development of sounds is possible. Hence the apparent infinitude of articulate sounds does not consist in a boundless extent, but rather in an endless divisibility, within assignable limits. They may all be classified upon a physiological basis, so that every sound may find its proper position in the general system.

Since the laws of the physical organism are unchangeable, it is only necessary to understand them correctly, and to observe their application to the linguistic science.

In this department much has been effected, and most important steps have been taken towards a solution of the problem. We may here refer to the labours of *Kempelen*, *Liscovius*, *Dzondi*, *Willis*, but above all to the researches of *Joh. Müller*.<sup>1</sup>

The results also of physiological investigations have in several instances been applied to the science of language by *R. von Raumer*, *Rapp*, *Schleicher*, *Bindseil*, *Heyse*, and others.

Hence it appears that all previous conditions of the problem have been fulfilled. It has become possible to construct an alphabet, based on physiological principles, answering all the requirements of linguistic science, and embracing all the sounds contained in the two great alphabetical systems of Asia. This possibility alone justified, and indeed demanded, a new effort to reach the goal. Nevertheless, this attempt might perhaps

<sup>1</sup> *Handbuch der Physiologie des Menschen*, Band 2. p. 180. sqq. 1840.

have been still long deferred, or even given up entirely, on account of the great practical difficulties which oppose every attempt at union in the republic of letters, if another and more lively impulse had not been given to it, within the last few years, from *another quarter*.

*What has been done by the MISSIONARY SOCIETIES for the Solution of the Question?*

We have stated above, that the want of a uniform alphabet for those nations which are to be gained over to Christianity and civilisation, and which have no written language, is more and more strongly felt every day in missionary labours. The difficulty of introducing a convenient alphabet into practice is here much less than in the scientific world, as the managing committees can recommend such an alphabet to the missionaries dispersed over the whole earth, which will be a sufficient motive for its reception by the great majority.

The first recommendation from such a quarter was issued in the year 1848 by the Secretary of the *Church Missionary Society*, the Rev. *Henry Venn*, under the title, "*Rules for reducing unwritten languages to alphabetical writing in Roman characters, with reference especially to the languages spoken in Africa.*" We quote the first two paragraphs, which represent the missionary point of view in a clear and comprehensive manner: "The want of a standard system of orthography has been experienced by all persons engaged in the study of unwritten languages. Each translator having to choose his own system, it has not unfrequently happened that two or more persons engaged upon the same language have adopted different systems. This has prevented, in a great measure, the mutual assistance, which the parties might have rendered each other; and has retarded the formation of primers and educational works, and the translation of the Holy Scriptures.

"To obviate these difficulties, several of the Missionary So-

cieties, whose missionaries are engaged in Vernacular Translations of African languages, have proposed the adoption of a common system of orthography, to be regarded as a standard system, and to be employed, as far as possible, in all works printed under their sanction. If in any particular case deviations from the system be thought necessary by the Translators, it is proposed that *such deviations should be referred home* before their adoption in printed works."

This proposal adopts and consistently maintains the true principle, that every simple sound is to be expressed by a simple sign, and rectifies the English vowel-system.

In the year 1849, the attention of the *American Mission of Port Natal* was drawn towards the difficulties of the orthography adopted for the Zulu language, and they submitted the subject to the examination of a committee.

About the same time the want of new signs for newly discovered African sounds, was felt in several other African Missions; and some such signs were introduced into various books, as in those published by the *Norwegian Society at Natal*, by the *English Church Mission among the Suaheli* on the eastern coast, and by the *American Board on the Gaboon river* in the west, also in *Appleyard's Kaffir Grammar*, printed for the *Wesleyan Society*, at King William's Town. These circumstances led the Committee at *Port Natal*, in March, 1850, to address a general circular to the friends of Missions and African civilisation, proposing a plan for securing a uniform orthography for writing the South African dialects. In further pursuance of their plan, an essay was communicated in October, 1852, to the Conference of the *American Oriental Society*, at New York, and printed in vol. III. No II. 1853, p. 421. sqq. of the Publications of this Society, under the title, "*An Essay on the Phonology and Orthography of the Zulu and kindred dialects in Southern Africa*, by the Rev. *Lewis Grout*, Miss. of the Amer. Board in Southern Africa."

The general principles and requirements of an alphabet, adapted especially for African languages, are here developed with accuracy and acumen, and are applied in particular to the *Zulu* language, including the clicks peculiar to the most southern African languages. This alphabet, however, is not based on a sufficiently comprehensive system of phonology, and the single letters consequently are not arranged according to their natural affinities. The Sanscrit and other written languages were not taken into account, and the former use of compound consonants is supplied partly by altering the form of letters, partly by combining them with diacritical signs, as *y*, *ʃ*, *h*, *r*, *l*, or *s*, or *ś*, or *ṣ*, for our *n̄*, *n̄*, *ḥ*, *ḥ*, *ṣ*.

In the Autumn of 1852, the author of the present paper, being in London, had the opportunity of discussing this subject (which had occupied his mind for several years) with some of the most influential members of Missionary Committees: and he was invited by the Rev. H. Venn to furnish him with a development of his alphabet, which appeared suitable for general adoption and conformable on the whole to the "*Rules*." Mr. Venn proposed to transmit such an explanation of the alphabet to the Missionaries. Prevented, at that time, from complying with this wish, he simply communicated a tableau of the alphabet, which was inserted by Mr. Venn in a second edition of the "*Rules*" in 1853.

Soon afterwards the author was again induced to direct his special attention to this subject, by a visit of the Rev. *S. W. Koelle*, in consequence of which he determined to bring forward his own long prepared project, after discussing it minutely with this gentleman, whose valuable contributions to African philology have been already mentioned. It was now judged proper to publish the proposed alphabet, which had hitherto only been communicated privately to several of the most distinguished linguistic scholars.



The author therefore resolved to explain the principles of his plan in an essay to be read in a general sitting of the *Academy of Berlin*, and to propose at the same time that the Academy should examine the alphabet in question, and, if approved, have types cut and cast for printing it. This proposal was laid before the historico-philological class, and a committee appointed, composed of Professors *Bopp*, *Jacob Grimm*, *Pertz*, *Gerhard*, *Buschmann*, with the assistance of Professor *J. Müller* from the physical class. This committee approved the plan, with the exception of one member who denied in general the usefulness of all such endeavours; and on the 23rd of January the *Class ordered the cutting and casting of the proposed types*, which have consequently been used in the present pages.

About the same time, the interest on the subject having greatly increased, chiefly from the progress of Missions, a new step was taken in London for the furtherance of the object in view. Chevalier *Bunsen*, whose reputation as a statesman, a scholar, and a friend of every important Christian movement is universally acknowledged, called a meeting of distinguished men, more or less interested in the question, among whom we may name, Profs. *Wilson*, *Müller*, *Owen*, *Dietrich*, Sir *C. Trevelyan*, Sir *John Herschel*, Hon. Mr. *Stanley*, Messrs. *Norris*, *Pertz*, from Berlin, Messrs. *Babbage*, *Wheatstone*, and *Cull*; the Rev. Messrs. *Venn*, *Chapman*, and *Koelle*, and Mr. *Graham*, of the Church Missionary Society, — the Rev. Mr. *Arthur*, of the Wesleyan Missionary Society, — the Rev. Mr. *Trestrail* and Mr. *Underhill* of the Baptist Missionary Society. The author also had the honour of being invited to this meeting, and was happy to be present at the three last conferences. These were occupied principally with the physiological basis, which was generally acknowledged to be necessary; and was adopted without much dissent by the assembly.

With regard to the graphic system to be employed, three different proposals were examined.

The *first* was supported by Sir *Charles Trevelyan* (above, p. 11), who recommended the orthography which originated with Sir *W. Jones*, and which has been frequently applied in India. Its merits and soundness, in comparison with that of *Gilchrist*, were fully acknowledged; but at the same time its want of a physiological basis, and of a complete development in detail, could not be overlooked.

The *second*, by Prof. *M. Müller*, proposed to mark the deviations from known European sounds by printing the known letters in *Roman* characters, the foreign in *italics*. The principal objections against this intermixture of Roman and italic letters, of which Sir *W. Jones* had already decidedly disapproved (see above, p. 9), were the following: — This plan would exclude the ordinary significance of italics, which could hardly be supplied by any other means; neither is it applicable at all to writing. On these grounds it would prove most inconvenient for all missionary purposes. It would not meet the cases in which a European letter undergoes more than one modification, and would thus be incapable of expressing even whole classes of sounds. Finally, this theory, neglecting the continuity of historical development, introduces a novelty, which it can hardly be expected will be universally adopted.

The *third* proposal was that of the author, and its object was only to bring the orthography hitherto used in science into more exact conformity with the laws of physiology, and to adapt it to practical purposes.

The object of the meetings was rather to prepare the question for further discussion and examination, than to adopt resolutions which should be considered as binding. The physiological system of phonology upon which the proposed alphabet had been based, was acknowledged to be substantially sound. And the author considers himself justified in stating that with respect also to the graphic system the views of the majority did not widely differ from his proposal.

The most important result of this conference, in the author's apprehension, was the determination announced at the last meeting in reference to *the practical object of this alphabet*. Mr. Venn expressed his "conviction that the interests of Missions would allow of no longer delay in the adoption of a *standard alphabet*: that the Church Missionary and other Societies had already substantially adopted, for this purpose, that of Professor Lepsius: and that as nothing had been concluded upon by this conference which held out any prospect of superseding or materially improving it, he and the parties with whom he acted must go forward in the course upon which they had entered; and without pledging their Missionaries to the adoption of every mark or sign, in every case, they must put forward Professor Lepsius's system as *the standard*; and all departures from it must be carefully canvassed, and marked as deviations, in works printed by the societies."

The author was also requested to draw up the present sketch for the purpose of communication to missionaries. At the same time the Berlin Academy was requested to have two sets of their types struck off for the Church Missionary Society, that the forms of the characters might be identical; and orders were given for the execution in these types of two works on African languages, already prepared for the press.<sup>1</sup>

It is hoped that this determination may be favourably regarded by all other missionary societies. We do not expect that everybody should agree about all the details of this alphabet; but it is not unreasonable to hope that it will be considered as a *standard*, and as affording a common basis by which other alphabets may be brought into the greatest possible agreement. Different languages may require different modifications. Few, if any languages will require *all* the diacritical signs which must appear in the complete alphabet; while some

<sup>1</sup> The first of these works has been already published. *Grammar of the Bornu or Kanuri Language*, by Rev. S. W. Koelle, 1854.

languages may require marks of distinction peculiar to themselves. It is therefore necessary that the system should be elastic enough to admit of such reduction and enlargement without alteration in its essential principles. Cases may even arise in which material deviations from the proposed alphabet may appear unavoidable, and be advocated, on sufficient grounds, by scholars engaged in such researches. In all such cases, it is hoped that the Committees of Societies will require the reasons of such deviations to be laid before them and discussed, before the deviations are introduced into books printed by their authority. This principle is most important for the furtherance of the object in view, and was repeatedly insisted upon by Mr. Venn, as indeed it had been already laid down in the "*Rules*" (see above) by the Committee of his Society in the year 1848.

After these preliminaries we pass on to develop

*The System proposed.*

A COMPREHENSIVE exposition of the *physiological basis* would here be out of place. We must limit ourselves to facilitating the understanding of the system. This will be best accomplished by not separating the phonic from the graphic system, but by presenting the first immediately in its application to the latter. We do not enlarge, therefore, on the definition of voice and sound, of vowel and consonant, and other physiological explanations, and shall only refer to them as occasion offers.

A. THE SYSTEM OF VOWELS.

THERE are three primary vowels, as there are three primary colours. Like the latter, they can be best represented by the analogy of a triangle, at the top of which is to be placed *a*, at the basis *i* and *u* (pronounced as in the German and Italian languages).



The other vowels are formed between these three, as all colours between red, yellow, and blue. In the most ancient languages only these three primary vowels were sufficiently distinct to be marked in writing even when short. The Hieroglyphical, Indian, oldest Hebrew, and Gothic systems of writing admitted either of no other vowels at all, or at least of no other *short* vowels; in Arabic writing, even now, none but these three are distinguished.

Next after these were formed, the intermediate vowels *e* between *a* and *i*, *o* between *a* and *u*, and the sound of the German *ü* (French *u*) between *i* and *u*, also that of the German *ö* (French *eu*) between *e* and *o*. Thus arose the pyramid

$$\begin{array}{c} a \\ e \quad \ddot{o} \quad o \\ i \quad \ddot{u} \quad u \end{array}$$

The distance between *a* and *i* and that between *a* and *u* is greater than that between *i* and *u*. The intermediate vowels *e* and *o* were, therefore, divided each into *two* vowels, of which one was nearer to *a*, the other nearer to *i* or *u*; and in the same manner two sounds out of *ö* were formed. All these vowels exist in European languages, and compose the following pyramid:

$$\begin{array}{ccccc} & & a & & \\ & & \text{Fr. } \grave{e} & \text{Fr. } eu & \grave{o} \text{ Ital.} \\ & & & \text{(in } peur \text{)} & \\ & \text{Fr. } \acute{e} & & \text{Germ. } \ddot{o} & \text{au Fr.} \\ i & & & \text{Germ. } \ddot{u} & u \end{array}$$

In some European languages and dialects other shades are found; we have, however, the less occasion to mention them here, as hitherto they have not been observed in any of the languages out of Europe that come under our consideration.<sup>1</sup>

<sup>1</sup> The English vowels especially deviate throughout a little from those of other languages, there being a slight difference in the general position of the mouth.

We might have wished to maintain for the middle series of vowels the two dots over the *u* and *o*, on account of the generally known precedent in the German orthography, the French double letter *eu* not answering the simple nature of the sound. A practical objection, however, to this mode is found in the circumstance, that occasionally over every vowel the sign of long  $\bar{\quad}$  and short  $\check{\quad}$ , and also that of the accent of the word ' will be necessary, for which the whole space over the letter is required. We have preferred, therefore, to preserve the two dots, and to place them under the vowel, as  $\underset{\cdot}{o}$  and  $\underset{\cdot}{u}$ .

The distinction of the two modes of pronouncing *e* and *o* cannot be marked by the French accents, partly because the upper space is wanted for other signs too generally in use to be dispensed with, and partly because the acute accent would not be distinguished from the accent of the word. We add, therefore, as others have done before us, a line below to mark the broad open vowel  $\underset{\_}{e}$  and  $\underset{\_}{o}$ , and a dot below, to mark the pointed and closed vowel  $\underset{\cdot}{e}$ ,  $\underset{\cdot}{o}$ , the shape of these marks offering an analogy to the pronunciation itself.

From these combinations, the following system results, including the indifferent<sup>1</sup> or intermediate sounds:

		<i>a</i>		
	$\underset{\_}{e}$	$\underset{\cdot}{e}$	$\underset{\_}{o}$	$\underset{\cdot}{o}$
	<i>e</i>		$\underset{\cdot}{o}$	<i>o</i>
	$\underset{\cdot}{e}$		$\underset{\_}{o}$	$\underset{\cdot}{o}$
<i>i</i>		$\underset{\cdot}{u}$		<i>u</i>

We must mention, however, one other vowel, which exists in almost all languages, and ought not to be neglected by linguists. This is the *indistinct vowel-sound* from which, according to the opinion of some scholars, the other vowels, as it were, issued and grew into individuality, and to which the unaccented vowels of our aged European languages often return, as in the

<sup>1</sup> See below, p. 50. 51.

English words *nation*, *velvet*; the German *lieben*, *Verstand*; the French *sabre*, *tenir*. This vowel comes among the clear sounding vowels next to *o*, being itself a mixture of all the others<sup>1</sup>, but it is capable of various shades, and sometimes approaches nearer to *a*, or to *i* and *u*. From all of these, however, as also from *o*, it is distinguished by the absence of that clear resonance common to the others, which is lost by partially contracting the mouth or even closing it entirely: in the latter case it is heard through the nose.<sup>2</sup> This vowel is inherent in all soft *fricative* consonants, as well as in the first part of the *nasal explosive* sounds (see below); whence all these letters as *z*, *n*, *m*, appear sometimes as forming syllables.<sup>3</sup> It assumes the strongest resonance, as may be easily explained on physiological grounds, in combination with *r* and *l*, which, as is well known, appear in Sanscrit as *ṛ* and *ḷ*, with all the qualities of the other vowels.<sup>4</sup> We should feel inclined to represent this sound by the Greek letter  $\varepsilon$ , in order to distinguish it more fully from all the other vowels, and to fall in with the practice of Ludolf, Isenberg, Piccolomini, and others. However, there are strong objections to this: for it is not only very desirable to confine ourselves to the use of Latin characters, but the ancient and modern pronunciation of the Greek  $\varepsilon$  is

<sup>1</sup> The *o* resembles in the pyramid of colours the brown colour, which equally arises from a mixture of the three prime colours, or of one of them with the opposite intermediate colour.

	<i>red,</i>	
	<i>orange, brown, violet,</i>	
<i>yellow,</i>	<i>green,</i>	<i>blue.</i>

<sup>2</sup> It may be compared to *grey*, which also does not belong to the series of individual colours.

<sup>3</sup> In the Chinese language, for instance,  $\varepsilon$  is used as a vowel in the roots *s $\varepsilon$* , *ts $\varepsilon$* .

<sup>4</sup> A similar remark applies to the English vowel, into which all clear vowels resolve themselves before *r* combined with a second consonant as in *steward*, *herd*, *bird*, *work*, *burn*, and so on; yet the Indian vowel is still different from these.

also as different from the sound we wish to represent as that of the Latin *ċ*. Besides this, we represent the same sound in the vocalised consonants by a little circle (as *l̄, ḡ, ŋ̄*), and so it seems but natural to transfer this mark to the vowels. Accordingly we take the letter *e*, which, in most European orthographies, is used for an indefinite vowel<sup>1</sup>, and subscribe the little circle to it (*ė*). Hereby we gain the advantage that we can easily provide signs for those cases where the indefinite vowel approaches more closely to any of the common vowels, by subscribing the circle to them (as *ȧ, i̇, ȯ, u̇*). Such a case occurs, e. g., in the Kanuri or Bornu language, where Mr. Koelle<sup>2</sup> finds it necessary to distinguish between *ė* and *ȧ*.

Finally, the clear vowels are further capable of a peculiar alteration, that of *nasalisation*. This is produced not by closing nor even by narrowing the canal of the mouth, but by simultaneously opening the canal of the nose. There is no consonantal element brought into play (although the nasalisation is mostly caused by the dropping of a nasal consonant), but it is an alteration entirely within the vowel. As such it has been rightly understood by the Indian grammarians, who express the nasalisation (*anuswāra*) by a vowel-like sign, namely, by placing a dot over the letter. For the European alphabet, we choose the sign *~* placed over the vowel<sup>3</sup>, as the dot would be inconvenient in the case of the *i*, and write —

*ã, ĕ̃, ĭ̃, ỗ, ũ̃, õ̃, ŷ̃.*

The *length* of vowels is not expressed by the Greek sign *`*, but by the line used in Latin prosody, which requires less space, and is more easily combined with the accent *ā, á, ě*,

<sup>1</sup> e. g., *Burnouf, Roger, Endlicher, Petermann, Edwards*, also *Bopp* and *Schön*, who write *ċ*.

<sup>2</sup> In his *Grammar of the Bornu or Kanuri Language*. London, 1854.

<sup>3</sup> The same mark has occasionally been employed by *Burnouf* in his *Com-mentaire sur le Yaçna* (p. CXXIII, p. XI, tableau).



and so on. The shortness, if required to be specially expressed, is likewise, as in prosody, marked by ˘, ă, ě, ě, etc.

A complete and accurate theory of transcription would require a distinction of *diphthongs*, as such, since two vowels united by accent into *one* syllable are pronounced otherwise than when placed unconnectedly by the side of each other, and forming *two* syllables; the German word *Mai* having a different sound from that of the Italian *mai*. The first might be marked *Mai*, the second *maï*. Practice, however, seems in most languages not to require any distinction.

The complete tableau of the vowels and their modifications is therefore the following:

<i>a</i>	<i>ā</i>	<i>ē</i>	<i>ī</i>	<i>ō</i>	<i>ū</i>	<i>ō̄</i>	<i>ū̄</i>									
<i>e</i>	<i>ē</i>	<i>o</i>	<i>ō</i>	<i>ā</i>	<i>ǎ</i>	<i>ǐ</i>	<i>ǒ</i>	<i>ǔ</i>	<i>ǝ</i>	<i>Ǟ</i>	<i>r</i>	<i>l</i>	<i>m</i>	<i>n</i>	<i>ŋ</i>	<i>z</i>
<i>e</i>	<i>ē</i>	<i>o</i>	<i>ō</i>	<i>ā</i>	<i>ǎ</i>	<i>ǐ</i>	<i>ǒ</i>	<i>ǔ</i>	<i>ǝ</i>	<i>Ǟ</i>						
<i>i</i>	<i>ī</i>	<i>u</i>														

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## B. THE SYSTEM OF CONSONANTS.

### *On the Division of Consonants.*

THE consonants may be divided on different principles. Two principles of division, however, are prevalent, and will therefore be here adopted: although the exact place of every sound in the physiological system can result only from a minute enquiry into all its qualities.

The first and most important division is that determined by the *place* in the mouth where the sounds are formed. The breath which forms the sounds issues from the larynx into the mouth, and is here modified in a manifold manner, until it passes the outward gate of the lips. Thus the breath on its way can be stopped in various places either by the lips or by the tongue. We are accustomed in our languages, like the Greeks and Ro-

mans, to distinguish *three* such stoppings, and thus to divide the consonants into three classes, *gutturals*, *dentals*, and *labials*, according as they are formed in the throat, at the teeth, or with the lips.

There is another essential difference in the pronunciation, in as far as either the mouth at the above-mentioned places is completely closed and reopened, or the passage of the breath is only narrowed without its stream being entirely interrupted by closing the organs. The consonants formed by the first process we call *explosive* or *divisible* (*dividuae*), because the moment of contact divides the sound into two parts,<sup>1</sup> the others *fricative*, from their sound being determined by friction, or *continuous* (*continuae*) because this friction is not interrupted by any closing of the organs. The sounds *r* and *l* participate of both qualities, being *continuous*, and at the same time formed by a *contact*, which is vibrating in *r*, and partial in *l*.

We are thus enabled to give the following synopsis of the most generally known simple consonantal sounds.

<sup>1</sup> It will, on examination, soon appear that we often pronounce only half of a consonant, as, for instance, in all cases in which a nasal consonant meets another explosive letter of the same local class. The full pronunciation of an explosive letter requires the closing and opening of the organ. In *anda* we close the mouth with *n* and open it with *d*, the reverse in *adna*, pronouncing thus only half the *n* and half the *d*, whilst in *ana* and *ada* we pronounce the whole of *n* and of *d*; the same in *ampa* and *aika*, and so on. It is a decided mistake, to reckon *m* and *n* among the *consonantes continuae*; for in *m* and *n* it is only the vowel element inherent in the first half, which may be continued at pleasure, whilst in all the continuous consonants it is the consonantal element (the friction) which must be continued, as in *f*, *v*, *s*, *z*. When in a final *m* we do not reopen the mouth, we pronounce only half an *m*, not a whole one. The complete consonant is best perceived when placed between two vowels. It is evident that in *ama* closing and opening are as necessary to the completeness of *m*, as in *aba* to that of *b*. This has been correctly understood by the Indian grammarians.

## The Simple Consonants in the European Alphabets.

	explosivæ or dividuae.			fricativæ or continuæ.			incipites.
Guttu- rales	fort. <i>k</i>	len. Ger. <i>g</i>	nasal. Ger. <i>ng</i>	fortis. Ger. <i>ch</i>	lenis. <i>h</i> Danish <i>g</i>	semivoc. Ger. <i>j</i>	gutt. <i>r</i>
Denta- les	<i>t</i>	<i>d</i>	<i>n</i>	Fr. <i>ch</i> sharp <i>s</i> Engl. <i>th(-in)</i>	Fr. <i>j</i> Fr. <i>z</i> Engl. <i>th(-inc)</i>		<i>r l</i>
Labia- les	<i>p</i>	<i>b</i>	<i>m</i>	<i>f</i>	Fr. <i>v</i>	Engl. <i>w</i>	

*Upon what Principles are these Sounds to be rendered  
in a General Alphabet?*

Of these sounds only 11, viz. *k, h, t, d, n, r, l, p, b, m, f*, have one and the same universally acknowledged value in the European alphabets, putting aside a few minor differences. The others require to be specially defined. Even among these the simple signs, *g, s, z, v*, and *w* are already so generally introduced into linguistic books in the value indicated above, that we may safely use them without further discussion.

We meet with some difficulty, however, with respect to the sounds of the German *ng, ch*, and *j*, the French *j* and *ch* (or English *sh*), the English sharp and soft *th*, the Danish *g*, and the guttural *r*. These nine sounds have been represented in linguistic books by various means.

The inconvenience of the common way of writing them will be evident, when we refer to the *principles* upon which every alphabet, aiming at general application, must be grounded, and which are essentially as follows: —

- I. *Every simple sound ought to be represented by a simple sign.*  
This excludes the combinations *ng, ch, th*.
- II. *Different sounds are not to be expressed by one and the same*

*sign*; contrary to which principle *ch. j, th* have been used each with a double value.

III. *Those European characters which have a different value in the principal European alphabets, are not to be admitted into a general alphabet.* To these belong especially *c* and *j*. The former is pronounced in German *ts*, in French and English *s* or *k*, in Italian *tš* or *k*, and when combined with *h*, in German like the Greek  $\chi$ , in English *tš*, in French *š*, in Italian *k*; *j* in German and Italian like the English *y* in *year*, in English *dž*, in French *z*, in Spanish like the German *ch*, or Greek  $\chi$ . No less different are the sounds indicated by *x*. The characters *c, ch, j, x*, are therefore to be excluded entirely.

IV. *EXPLOSIVE letters are not to be used to express FRICATIVE sounds, and vice versá.* On the contrary, the simple characters (bases) must form a separate series in each of the two great divisions; if not, inextricable confusion will inevitably arise. Consequently *c* (= *k, tš, ts*), being explosive, cannot serve as basis for the fricative German sound *ch*. For the same reason the *explosive c* is to be avoided in rendering the *fricative* French *ch*, as also the *explosive t* in the fricative English *th*.

If, then, we look for signs which can be applied to the sounds above indicated, so as not to violate these most important principles, we shall find the choice of letters more circumscribed than it would at first appear.

*German ng.*

In German and in English (as for instance, Germ. *enge*, Engl. *singing*) *ng* expresses the guttural  $n^1$ , for which linguistic use has very generally adopted *ñ*, particularly in transcribing the Sanscrit. It is evident that *n* must remain the basis, and there is no reason for introducing any other diacritical sign.

<sup>1</sup> In most other languages, as in Sanscrit, it appears only before other gutturals; Indian scholars, therefore, do not generally distinguish it from the dental *n*.

*Guttural r.*

The guttural *r* differs from the usual dental *r*, in as much as the *velum palati* is put in vibration instead of the tip of the tongue. It is often thus pronounced in different dialects of the German, French, and other languages. The point over the letter marking already the guttural pronunciation of *r*, no other diacritical sign will be chosen for the same purpose in *r*. We write it, therefore, *r̄*.

*German j.*

The German *j* is the semi-vowel which, in English (*year*, *yes*), and sometimes also in French (*Mayence*, *Bayonne*), is expressed by *y*. As, according to rule No. III., we cannot retain the sign *j*, we write *y*, following here also the use generally adopted in linguistic books.

*German ch.*

The German *ch* in *lachen* is known to be the *fricative* sound, which arises from the throat, not being closed at the guttural point (which would give *k*), but only narrowed, so that the strong and continuous breath produces a friction, such as is heard at the teeth in *s*, and at the lips in *f*. The English, French, and Italians, do not know the sound at all; in the Spanish language it is marked by *j* or *x*. In the Semitic languages (Hebrew ך, Arabic ح) it is very frequent. Of European alphabets only the Spanish and the Greek have a simple letter for the sound. The Latin language did not know the sound, and therefore did not express it. The signs hitherto used by linguistic scholars, *ch*, *kh*, *qh*, *ķ*, *x*, are in opposition to the inviolable principle that fricative sounds must not be represented by explosive bases, such as *c*, *k*, *q* (above No. IV.), or are altogether improper, like *x*. The nearest applicable fricative basis would be *h*. But it will appear from the sequel that this sign would be used for six different sounds, if we do not confine it strictly to its proper meaning. The difficulty,

of finding an appropriate sign for this sound is therefore great, and has been long felt. We possess one, however, in a European alphabet, namely, the Greek, which is almost as generally known as the Latin. From this it has been adopted into the Russian alphabet; and the Spanish *x* owes its pronunciation, probably, rather to the Greek  $\chi$ , than to the Latin *x*. The want of a new sign, which of course could not be supplied from an Oriental alphabet, had already caused Volney to propose the Greek  $\chi$  in his alphabet of 1795, and, after the mistaken experiment of substituting  $\kappa$ , to reproduce it in his last alphabet of 1818. The same sign is used by *Joh. Müller*<sup>1</sup>, *Rapp*<sup>2</sup>, *Bunsen*<sup>3</sup>, and others.

We therefore consider it not only as an essential advantage, but even as the only means of solving all difficulties, to follow these precedents, and to receive the Greek  $\chi$  as the representative of this sound in the general alphabet. Of the soft sound, which corresponds with the strong, we shall have to speak below.

*English sh, French ch, German sch.*

For the rushing sound of the English *sh* we should not hesitate to propose a new basis, and to borrow it, if necessary, from the Greek alphabet, if any such existed. But neither the Greeks nor the Romans had this sound; and we must avoid recurring to the Oriental, or even the Russian alphabet, as few persons could be expected to follow us so far. Our only resource, therefore, is to content ourselves with the nearest basis *s*, and to qualify this by a diacritical mark. This has been done, moreover, by all those that sought a simple sign for this simple sound, except by Volney, who first proposed a newly invented sign  $\Psi$ , and afterwards preferred  $\zeta$ , viz. the inverted *j*. Some used  $\acute{s}$  or  $\bar{s}$ . More generally  $\mathcal{s}$  has

<sup>1</sup> *Handbuch der Physiologie*, vol. II. (1837), pp. 237, 238.

<sup>2</sup> *Physiologie der Sprache*, p. 65.

<sup>3</sup> *Aegyptens Stelle in der Weltgeschichte*, vol. I.

been adopted, from the precedent of Bopp, who has used it since 1833. Others have preserved the combination *sh*, which not only offends against the simplicity of the sound, but has produced also the incorrect impression, that the rushing sound implied a stronger breath than the common *s*. We should adopt Bopp's *ś*, on account of the authority of the precedent and its reception by his school, if it were not open to serious objections. The spiritus asper is, like *h*, a sign of aspirates, and from the analogy of the aspirates *lh*, *th*, *ph*, one ought to read *ś* as *s-h*, pronounced separately, or, from the analogy of *kh*, *gh*, etc. (see below), to suppose an augmentation of the breathing of the *s*. None of these is the case. It would be, therefore, introducing a new meaning of the spiritus asper, used only in this single case. Nor can we adopt *ś'*, since the accent indicates the palatal series (see below), and the single precedent of *š* used by Schleiermacher has hitherto found no imitation.

We propose to write *š*, using a sign which, by its semicircular shape, recalls the position of the mouth proper to its pronunciation; a consideration, by which we have been led occasionally in the choice of diacritical signs, when more conclusive motives were wanting. It is an advantage, also, that the proposed mark over the *s* comes as near as possible to the widely extended method of Bopp. Finally, we may refer to the Serbian and the modern Bohemian alphabet, in which the slightly different *š* for our *š* has been in constant and general use.

#### *French j.*

This letter is the soft and vocalised sound, which corresponds to the strong French *ch* (German *sch*), and stands exactly in the same relation to it as the French *z* to the strong *s*. Volney retained the French *j*, which we cannot use even as a basis (see above), any more than *zh*, which has been introduced by others. There can be no doubt, however, that the parallelism

with our *š* for French *ch* requires a soft *ž* for French *j*, which, following the same analogy, the Serbians write *ž*.

*English strong th.*

The English *th*<sup>1</sup> offers exactly the same difficulties as the German *ch*. It is a *littera fricativa* or *continua*, and must not, therefore, have the explosive letter *t*, for its basis. The only Latin character of the fricative division, which might be applied to it, is *s*, and, for the soft sound, *z*. Both, however, have been already applied each to two uses, and would besides have the disadvantage of favouring the tendency, common to most European nations, to substitute the usual dental *s* for the peculiar lisping sound. In this case, also, it will soon (when frequent use shall have overcome the first-felt apprehension) be acknowledged as an advantage, if, instead of *s* with a diacritical sign, we adopt the universally known Greek character *θ* as a new and original basis. Nor is it without precedent, *θ* having been used for this purpose by many, among whom we may again mention *Volney* (1795) and *Fleischer* (1831).

We do not undervalue the evident and serious difficulty, that by the reception of two Greek characters, the generally required confinement to the Roman alphabet suffers an exception; and we foresee that many who do not sufficiently appreciate the great importance of the organic laws of the alphabet, may be shocked at first. A further consideration will, however, soon make it evident, that the peculiar poverty of the Latin language in fricative sounds and letters, and the general tendency of all languages to transform the explosive into fricative sounds<sup>2</sup>, have rendered the disproportion between the two great divisions of sounds, with respect to their graphic representation,

<sup>1</sup> The same lisping sound exists in the Arabic and many other, also in some African, languages.

<sup>2</sup> Instances of this tendency are generally known from the Romanic languages. See also below, where the Palatals are considered.



already so great that an essential and lasting remedy is absolutely required. There are, indeed, eight bases for the above-stated nine explosive sounds, and only six for the twelve fricative sounds. An augmentation of the latter by introducing the two Greek signs  $\chi$  and  $\theta$ , is consequently almost unavoidable; and their absolute necessity will soon be still more evident when we come to consider the Asiatic sounds in addition to the European.

*The soft English th, and the Danish g.*

The sound of the soft English *th* (*thine, thou*) appears also in the Danish *d* and in the modern Greek  $\delta$ ; the soft guttural corresponding to the strong German *ch* presents itself in the Danish *g* and the modern Greek  $\gamma$ .<sup>1</sup> It cannot be denied that it would be a real advantage if we had other bases for these soft sounds than  $\chi$  and  $\theta$ , as *z* differs from *s*, *ž* from *š*, *v* from *f*; and when in future time the natural antipathy against the Greek characters  $\chi$  and  $\theta$  shall have given way to the conviction of their necessity, perhaps it may be less difficult to go still farther and to mark the corresponding soft sounds equally by the Greek letters  $\gamma$  and  $\delta$ .<sup>2</sup> For the present we hesitate to make this proposal, although we might adduce the important precedent of Fleischer (1831), partly because the modern Greek pronuntiation of  $\gamma$  and  $\delta$  is less known than that of  $\chi$  and  $\theta$ , partly because we wish to depart from the general basis of Latin letters only in cases of extreme necessity. An easy analogy will lead us therefore, retaining the same basis, to express the strong and soft breathing by the spiritus asper and lenis

<sup>1</sup> The modern Greek  $\gamma$  passes, at least before  $\epsilon$ ,  $\iota$ ,  $\upsilon$ , into the corresponding fricative sound.

<sup>2</sup> There can be no doubt, that neither did  $\chi$  and  $\theta$  originally signify the fricative sounds substituted in a later time, but the aspirates  $\kappa$  and  $\lambda$ . The epoch of the altered pronuntiation of  $\chi$ ,  $\theta$ , and  $\varphi$ , cannot be accurately defined, but has been probably contemporaneous with the alteration of  $\gamma$  and  $\delta$ , whilst  $\beta$  seems to have approached  $\upsilon$  in still earlier times.

respectively, writing the strong  $\acute{\chi}$ ,  $\theta$ , the soft  $\tilde{\chi}$ ,  $\tilde{\theta}$ . The basis itself having been used in the Greek alphabet originally for the strong sound, and this sound being by far the more frequent, the spiritus asper may be omitted.<sup>1</sup>

We are thus enabled to give the following tableau of the European sounds:

Alphabet of the European Consonantal System.

	explosivæ or dividuæ.			fricativæ or continuæ.			incipites.
	fortis.	lenis.	nasalis.	fortis.	lenis.	scnivoc.	
Gutturales	<i>k</i>	<i>g</i>	<i>ñ</i>	$\acute{\chi}(\chi)h$	$\tilde{\chi}(\gamma)$	<i>y</i>	<i>r</i>
Dentales	<i>t</i>	<i>d</i>	<i>n</i>	$\left\{ \begin{array}{l} \tilde{s} \\ s \end{array} \right.$	$\left\{ \begin{array}{l} \tilde{z} \\ z \end{array} \right.$		<i>r l</i>
Labiales	<i>p</i>	<i>b</i>	<i>m</i>	<i>f</i>	<i>v</i>	<i>w</i>	

*Enlargement of the Alphabet by the Addition of the Foreign Sounds of Oriental Languages.*

The Asiatic languages, especially the Indian and the Arabic, possess, besides the sounds hitherto considered, others, which hardly exist at all in European languages, or at least are only fully developed in Asiatic languages, and, therefore, can only find their proper position in a more comprehensive system. Instead of the three European classes, we must distinguish *seven*, which we shall now consider separately.

I. THE FAUCAL CLASS.

*h*

We are accustomed to reckon *h* among the gutturals. It is

<sup>1</sup> There is certainly an inconsistency in our using the sign ' , which otherwise indicates an interruption of breath, to mark a soft spiration; but this is unavoidable, if we will not substitute the Greek letters  $\gamma$  and  $\delta$ .

easily observed, however, that we pronounce this sound behind the guttural point, immediately at the larynx. When pronounced so softly as to be vocalised, *i. e.* so as to imply a vowel sound produced in the larynx (as with *z, v, θ, ð*) the friction ceases to be audible, and only the vowel element is heard. This vocalised consonantal breathing, is, therefore, not peculiarly marked in any language. *h* belongs, therefore, to the unvocalised strong fricatives.

*Arabic* ح, *Hebrew* ח, *Sanscrit* ह, *Greek* spiritus lenis.

By closing the throat and then opening it to pronounce a vowel, we produce the slight explosive sound which in the Eastern languages is marked separately, but not in the European, except in the Greek. We perceive it distinctly between two vowels which following each other are pronounced separately, as in the Italian *sarà 'a casa*, the English *go 'over*, the German *See 'adler*,; or even after consonants when trying to distinguish, in German, *mein 'Eid* (my oath) from *Meineid* (perjury), or *Fisch-'art* (fish species) from *Fischart* (a name), &c. We indicate this sound, when necessary, by the mark ' , like the Greeks.

*Arabic* ع, *ʿain*.

The soft sound just described, can be pronounced hard by a stronger explosion at the same point of the throat. Thus arises the sound which the Arabs write ع. We find it expressed by scholars generally by placing a diacritical sign over the following vowels, *á, à, á, á, á*; sometimes below, *a*. This method would suppose, from the analogy of all systems of writing, that the ع were only an indication of a change in the vowel. It is, however, a full consonant, preceding the vowel. We indicate it, therefore, with regard to its affinity to the soft sound, by doubling the spiritus lenis, *ʿ*.

*Arabic* ح, *ha*.

The fricative sound corresponding to *ʿ* is not the common *h*,

but a stronger aspiration, which requires a greater contraction of the faucal point, and is distinguished by the Arabs from the simple *h*. I has, therefore, been often indicated by *hh*. We write *h'* corresponding with  $\hat{x}$ ,  $\theta$ , and have a precedent in the writings of Fleischer (1831), Ewald (1831), Vullers (1841).

The absence of any nasal sound in the faucal series is necessitated by the physiological position of the faucal point, the contraction of which closes at the same time the canal of the nose.

The faucal series is confined, therefore, to the following four sounds, thus represented:  $\text{; } \text{ } \text{h} \text{ } h$

## II. THE GUTTURAL CLASS.

As we have already excluded the *h* from this class, on account of its being pronounced *behind* the proper guttural point, we must, to be accurate, exclude the *y* also, and put it in the next following class, this sound being formed in the mouth *before* the guttural point.

Again we are obliged to comprise a sound peculiar to the Semitic languages, viz.

*The Arabic ع and Hebrew פ qof,*

which is formed at the posterior soft part of the palate, although this class has its place of formation a little more forward, at the point where the *velum palati*, joins the hard palate. We indicate this sound by the sign which the Greeks and Romans substituted for it, although it cannot be proved that they pronounced it exactly in the same manner, viz. *q*.

We obtain by this addition the following complete guttural series:

$k \ q \ g; \ \hat{n}; \ \hat{x} \ \hat{x} \ (\gamma); \ \hat{r}$

## III. THE PALATAL CLASS.

We find in the Sanscrit a class of sounds placed between the gutturals and dentals by the Indian grammarians, who indicate as the place of their formation the hard palate (*tālu*).

The first two sounds of this class being explosive, are pronounced by the natives, according to all descriptions, like the English *ch* and *j* in *choice* and *join*, or like the Italian *c* and *g* in *cima* and *giro*. These English and Italian sounds are, as no one that hears or pronounces them will doubt, compound sounds, beginning with a dental or lingual *t* or *d*, and terminating with *š* or *ž*. But in the sacred Devanagari writing of the Indians, simple signs only represented simple sounds; and their language itself leaves not the least doubt that the sounds च and ज were really simple, not compound sounds. This is proved, for instance, by their not rendering the preceding syllable long, and by the possibility of doubling them.<sup>1</sup> These sounds were consequently pronounced originally in another manner than now, viz. as *simple* sounds. Even though we were not now able to define these sounds more accurately, we ought undoubtedly to indicate them in Sanscrit by a peculiar sign. For this purpose, Bopp and his school have introduced the mark ' over the letter. This we retain, and place it over all guttural letters when their palatal value is to be indicated. Thus we get the series: *k' g' n'*; *č' č' (č')*; *y*.

A farther consideration of this phenomenon will show that a transformation of former gutturals into sibilant dentals has occurred also in other languages. The Greek *κοῖλον*, i. e. *koilon*, became in the Latin language *coelum*, i. e. *kolum*, and is sounded in the modern Italian *cielo*, i. e. *tšelo*; the Latin *caseus*, German *Käse*, has become, in English, *cheese*, i. e. *tšize*; the Hebrew *gamal* (the camel), and the Arabic *gemel*, became *gyemel*<sup>2</sup> or

<sup>1</sup> It is evident that in no language a compound sound can be doubled. If, resolving the English *riches* into its component sounds *ritšes*, one intended to double this sound, one could not write *richches*, i. e. *ritššes* (for that would sound as in *which child*), but would only repeat the first element and write *ritches*, i. e. *ritšes*. Compare what is said below on the doubling of the aspirates.

<sup>2</sup> To *t* and *d* also, in many languages, a slight sound of *y* is added, without producing the impression of a compound letter. If in certain languages it should appear convenient not to designate this secondary sound as a complete

*dyemel*, afterwards *džemel*, at last even *žemel*. Such transitions in the history of languages never take place suddenly, but always gradually. It is a very common phenomenon that the explosive letters first produce the corresponding fricative sounds behind them, and afterwards pass entirely into them, and that at the same time the gutturals advance constantly towards the anterior part of the mouth.

In passing from the guttural to the dental point two other points may be distinguished, and have been fixed by several languages, namely, the *palatal* point and the *lingual* point. The former is situated almost in the middle of the hard palate. A *k* or *g*, pronounced at this point by pressing the broad middle part of the tongue on the palate, will be easily distinguished from the deep gutturals *q*, *k*, or *g*. Such a palatal *k* is as different from the guttural *k* as the German *ch* in *ich*<sup>1</sup> from

consonant, it would be very appropriate to introduce, for the sounds *ty dy* (or rather *ty, dy*) the palatal line, and to write *t'* and *d'*, as *y* is indeed of a palatal nature, and communicates the same to the *t* and *d*. In some languages, as for instance the Slavonic and the Chinese, it might appear even desirable, from etymological or other linguistic reasons, to deviate, in certain cases of affrication and sibilation, from the general principle of using simple signs only for simple sounds, and to employ simple signs for such double and, as it were, diphthongic sounds. In these cases, it would seem to us more convenient, instead of introducing new bases like *c* and *j*, to retain the same bases, modifying them by adding a diacritical sign, writing instead of *ky, gy, ty, dy, tš, dž, ts, ds*, the following: *k', g', t', d', t', d', t', d'*. In the Slavonic assibilated *r*, the *r* and *z* are so completely mixed, that the sound can be rendered only *ř*.

<sup>1</sup> This sound offers great difficulty to the English and French, who in hearing and speaking mostly substitute *š*. It can hardly be doubted that the palatal sibilant **श्र** in the Sanscrit, either is now (for the descriptions of English scholars are not very accurate), or at least was originally, no other than this sound. It is now generally written *ś*, and this sign would not offend against the system; yet, as at the palatal point, no sound can be formed that resembles a simple *s*, but only a sound similar to *χ* or *š*; it is more accurate to write *χ* (or *š*), which ought to be introduced. If any one should think the designation too far differing from the usual one, he might perhaps prefer to write *ś* or *š*, which would at least render the actual pronunciation accurately enough.

the *ch* in *ach* or *Buch*, or as the common German *ch* in *Milch* from the Swiss *ch* in the same word.

In most languages *k* and *g*, before the vowels *e*, *i*, *o*, *u*, approach the palatal pronunciation, whilst before *a*, *o*, *u* they remain more guttural, owing to the formation of these vowels. In the Sanscrit the guttural and palatal pronunciation were distinguished before *all* vowels.<sup>1</sup>

The palatal sounds have, as their physiological formation will explain, the peculiarity of easily assuming a shade of *y*, which appears most distinctly in the palatal *ñ* and *ʎ*.<sup>2</sup> This slight shade which at first accompanies the palatal sound so closely that a fine ear perceives it as well before as after the moment of closing the organ in uttering the explosive sounds, increases afterwards easily, so as to become independent, and to grow into a full subsequent *y*, next into a *ʎ*, finally into *š*. Thus arises a series of compound sounds, which, from the palatal *k* through *ky*, *kʎ*, *tʎ*, *tš*, frequently pass into a simple *š*, or even *s*.

In those languages in which, as in Sanscrit, the pure and simple palatal is found distinct from the gutturals, or in which the friction connected with the palatals appears to be so inherent that in the organic construction of the language it may be considered as still forming a simple sound, it seems advisable also to retain the simple signs of *k*, *g*, *ñ*. But when the

<sup>1</sup> With regard to *č* (German *ch*) Germans do the same. They pronounce, for instance, the *ch* in all diminutives, even after *a*, *o*, and *u*, not guttural as in *Aachen*, *rauchen*, *Kuchen*, but palatal, as in *Mamachen*, *Frauchen*, *Uhuchen* from *Mama*, *Frau*, *Uhu*. The guttural *ch* is pronounced after all vowels in the most southern parts of Germany.

<sup>2</sup> If, for instance, we pronounce the *n* and *l* in *ano*, *fule*, so as to press the broad middle of the tongue upon the high middle part of the hard palate, we shall no longer hear the French words *agneau*, and *foulé*, but something very like *agneau* and *fouillé*, with this difference only, that in the modern French pronunciation we do not raise the tongue quite up to the palate, but only bring it near it, so that the sound is more and more dissolved in *y*, *agneau*, *fouyé*.

compound sound is manifestly marked in pronunciation, every consistent transcription ought undoubtedly to represent it by two signs. Of the peculiar case, when in a foreign alphabet these sounds are represented as simple from their being originally such, whilst they are now pronounced as compound, we shall have to treat below.

The series of pure palatal sounds will therefore be as follows:

*k g n; x x(y); y; l.*

It is to be observed only that *x* and the semivowel *y* are so near each other that the *x* will hardly appear in any language as a distinct sound by the side of *y*. It is self-evident that *y* need not assume the palatal mark, as there is no corresponding guttural sound.

#### IV. THE CEREBRAL CLASS.

This class, almost exclusively peculiar to the Indian languages, is formed by bringing the tip of the tongue backwards and upwards to the neighbourhood of the palatal point, so as to produce there the explosion or friction. To our ear, these sounds are nearest to the dentals. We retain for them also the diacritical sign introduced by Bopp and his school, viz. the dot under the letter, and write this Indian series

*t d n; ṣ; r l.*

#### V. THE LINGUAL CLASS

belongs as exclusively to the Arabic and cognate languages. In their formation, the breadth of the tongue either touches or approaches the whole anterior space of the hard palate as far as the teeth, its tip being turned below. It is consequently entirely different from the Indian *cerebrals*, although these, too, are frequently called *linguals*. It appears, therefore, suitable to confine this latter denomination to the Arabic sounds, and to retain the former for the Indian.<sup>1</sup>

<sup>1</sup> *Cerebral* was the original English denomination, which arose indeed from



The graphic representation hitherto adopted by Robinson, Caspari, Davids, and others, is a dot under the dentals, like that of the cerebrals. We have chosen instead of the dot, after the precedent of Volney, a small line, which conveniently indicates the broad position of the tongue of the Arabic linguals, in contradistinction from the cerebral formation, and yet is little different from the dot hitherto used. The Arabs have developed only four letters of this class, namely: *ṭ* *ḍ*; *ṣ* *ẓ*.

#### VI. THE DENTAL CLASS

exists complete in the European languages, and has been discussed above.

The essential distinction of the three fricative formations *š*, *s* and *θ*, together with the corresponding soft sounds *ž*, *z* and *θ*, from the guttural and palatal *χ* and *χ̣*, consists in the friction of the breath being formed and heard at the *teeth*. Modifications of this dental friction arise from the greater or smaller hollow space which the tongue leaves behind the teeth. When the tip of the tongue is placed at the very point of the friction, *θ* is pronounced; if it is laid against the lower teeth, whilst the upper side of the tongue is brought back behind the upper teeth, we have *s*; when the tongue recedes still farther, so that behind the upper and lower teeth a greater hollow space remains, this enlarged resounding space produces the sound *š*. It would be possible to bring the posterior termination of the resounding space still farther back as far as to the palatal, or even to the guttural point; the cavity also of the canal of the mouth can be prolonged by means of the lips. This, however, produces, no essentially distinct impression upon our ear, but the purely dental element of the sound, i. e. the friction at the teeth, decidedly prevails.<sup>1</sup>

a false translation of the Indian name *mūyḍḍanya*, i. e. letters of the *dome* of the palate, but has not yet been supplied by a more appropriate one.

<sup>1</sup> The distinction of a double *š* exists, as far as we know, in Slavonic languages alone; there the formation next to the teeth (Pol. *ṣ̌*) may be marked as lingual, by placing the line under the letter.

The Indian cerebral  $\xi$ , however, receives from the peculiar flexion of the tongue, which produces a double cavity in the mouth, a somewhat different expression, indicated by the cerebral point.

The dental series remains, therefore, the same as above,

$t d n; \xi \xi; s z; \theta \theta(\delta); r l.$

## VII. THE LABIAL CLASS

is also known from European languages, and has been developed above,

$p b m; f v; w.$

If we now comprise the seven classes in a general tableau, we obtain the following arrangement:

### The Consonants of the General Alphabet.

	<i>explosivæ or dividuæ.</i>			<i>fricativæ or continuæ.</i>			<i>ancipites.</i>
	<i>fortis.</i>	<i>lenis.</i>	<i>nasalis.</i>	<i>fortis.</i>	<i>lenis</i>	<i>semivoc.</i>	
I. <i>Faucales.</i>	$\text{ʔ}$	$\text{ʔ}$		$k$	$h$		
II. <i>Gutturales.</i>	$k$	$g$	$\dot{n}$	$\xi$	$\xi(\gamma)$		$\dot{r}$
III. <i>Palatales.</i>	$k$	$g$	$\dot{n}$	$\xi^x$	$\xi^z$	$y$	$\dot{l}$
IV. <i>Cerebrales.</i> (Indicæ)	$t$	$d$	$n$	$\xi$	$\xi$		$r$
V. <i>Linguales.</i> (Arabicae)	$t$	$d$	$n$	$s$	$z$		
VI. <i>Dentales.</i>	$t$	$d$	$n$	$\xi$ $s$ $\theta$	$\xi$ $z$ $\theta(\delta)$		$r$ $l$
VII. <i>Labiales.</i>	$p$	$b$	$m$	$f$	$v$	$w$	

### *Examples of the Pronunciation of these Sounds in an Alphabetic Series.*

We arrange these examples in an order which, in vocabularies of foreign languages, especially such as are rich in sounds, offers decided advantages over the usual one, viz. according to the *organs*. The Semitic alphabet, from which our common order is derived, had originally itself an organic arrangement,

which in course of time has been almost obliterated.<sup>1</sup> At present the order of our alphabet appears utterly confused, and it seems as little justifiable, as it is inconvenient, to force the same confusion, or even a greater one, upon all those new discovered languages which are to be presented with the art of writing. The inconvenience will be at once felt, when a vocabulary is to be formed, especially with regard to the new signs  $\rho$ ,  $\chi$  and  $\theta$ .

Our alphabetic tableau shows at first sight that an *organic* arrangement can be attained in a double manner, viz. by following either the *vertical* columns (as the Semitic and the oldest Sanscrit alphabets did essentially) or the *horizontal* ones, like the Devanagari. We should prefer the latter one, if it did not labour under the disadvantage of separating from each other those letters which in the different classes have the same bases. By following the vertical columns, we keep all those letters together, so that, without great inconvenience, the diacritical signs might even be entirely neglected in the alphabetical arrangement. Only  $\chi$  and  $\chi'$ ,  $\theta$  and  $\theta'$  would be separated, if it should not be preferred to write  $\gamma$  and  $\delta$ . In books, however, which are only destined for the European science, and in which few new characters or diacritical signs are to be employed, it is preferable not to alter the usual order of letters.

	VOWELS.	$\bar{e}$ engl. <i>cane</i> , <i>vein</i> , fr. <i>donné</i> .
		$\acute{e}$ engl. <i>men</i> .
$\bar{a}$	engl. <i>father</i> , fr. <i>âme</i> .	$\bar{i}$ engl. <i>see</i> , fr. <i>lit</i> .
$\acute{a}$	ger. <i>Mann</i> , ital. <i>ballo</i> .	$\acute{i}$ engl. <i>sin</i> , fr. <i>fil</i> .
$\bar{e}$	fr. <i>mère</i> , ger. <i>Bär</i> .	$\bar{o}$ engl. <i>all</i> , ital. <i>però</i> .
$\acute{e}$	engl. <i>happy</i> .	$\acute{o}$ engl. <i>hot</i> , <i>not</i> .
$\acute{e}$	ger. <i>recht</i> , <i>wenn</i> .	$\acute{o}$ ger. <i>von</i> .

<sup>1</sup> See the author's Essay: Ueber die Anordnung und Verwandtschaft des Semitischen, Indischen, Aethiopischen, Alt-Persischen und Alt-Aegyptischen Alphabets. Berlin, 1836.

ō engl. *no*, fr. *faux*.  
 ū engl. *rule*, fr. *nous*.  
 ũ engl. *foot*, fr. *ours*.  
 ȕ fr. *beurre*, *coeur*.  
 ȝ engl. *current*.  
 ȥ ger. *König*, fr. *feu*.  
 ũ fr. *fûmes*, ger. *Güte*.  
 ŷ fr. *but*, ger. *würdig*.  
 ai engl. *mine*, ger. *Kaiser*.  
 au engl. *house*, ger. *Haus*.  
 ay ger. *Häuser*, *heute*.  
 ei span. *reina*.  
 oi engl. *join*.  
 ǎ fr. *an*, *en*.  
 ẽ fr. *examen*, *Inde*.  
 õ fr. *on*.  
 õ fr. *un*.  
 ę engl. *nation*, ger. *Verstand*.  
 ʀ sanscr. च.  
 ʌ sanscr. लृ.  
 ʒ chin mandar. *tsz*. 子

## CONSONANTS.

## A. EXPLOSIVE. a. Fortes.

ʒ arab. ع (*ʕaïn*).  
 q arab. ق (*qaf*).  
 k engl. *cool*, fr. *cause*.  
 k sanscr. च.  
 t sanscr. ट.  
 t arab. ط (*tā*).  
 t engl. *town*, fr. *ton*.  
 p engl. *pine*, fr. *peu*.

## b. Lenes.

ʔ arab. ا, hebr. א (*alef*), gr.  
 spir. len. ᾿.

g engl. *gold*, fr. *gauche*.  
 ġ sanscr. ज, arab. *ġemel*.  
 d sanscr. ड.  
 d arab. د (*dā*).  
 d engl. *dear*.  
 b engl. *by*.

## c. Nasales.

ñ engl. *singing*, ger. *enge*.  
 ñ sanscr. ञ, ital. *gnudo*.  
 ñ sanscr. ण.  
 n engl. *no*.  
 m engl. *me*.

## B. FRICATIVAE. a. Fortes.

ħ arab. ح (*ħā*).  
 h engl. *hand*.  
 χ g. *Buch*, *ach*; pol. *chata*.  
 χ sanscr. ञ, ger. *ich*, *recht*.  
 š sanscr. ष.  
 š pol. *świt*.  
 š arab. س (*sād*).  
 š engl. *show*, fr. *chat*, ger. *schon*.  
 s engl. *sense*, fr. *savoir*.  
 θ (θ) engl. *thin*, mod. gr. θένος.  
 f engl. *fine*.

## b. Lenes.

χ (γ) arab. ġ (*ġaïn*), modern  
 gr. γέφυρα.  
 ʒ pol. *pożno*.  
 ʒ arab. ظ (*ẓā*).  
 ʒ fr. *jeune*, pol. *bazant*.  
 z fr. *zèle*, engl. *zeal*.  
 θ (ð) engl. *thy*, mod. gr. θίψα.

c. Semivocales.	r ital. <i>rabbia</i> .
y engl. <i>year</i> , fr. <i>Bayonne</i> , ger. <i>ja</i> .	ř gr. ξάβδος.
w engl. <i>we</i> .	l' ital. <i>gli</i> .
C. LIQUIDAE.	l' welsh <i>ll</i> .
ř germ. and fr. dial.	l sanscr. ऋ.
r sanscr. र.	l engl. <i>low</i> .

### *On the Aspirates and Consonantal Diphthongs.*

*Aspirates* are those *explosive* sounds which are pronounced with a simple but audible breath. This class has been most fully developed in the Sanscrit, where the *fortes* as well as the *lenes* of all classes can be aspirated in this manner. In the ancient Greek only the *fortes* admitted of the aspiration, and these afterwards passed into the corresponding fricatives. The aspiration can only follow the explosion, not accompany it throughout, as it does the friction of the fricatives. Thus, a real composition takes place.<sup>1</sup> If, notwithstanding this, the aspirates are represented in the Sanscrit as simple letters, this is to be explained by the circumstance, that the spiritus unites itself more closely with the explosive letters than any other consonant, and is of so little weight, that it does not make the preceding syllable long, and is, properly speaking, no more than an increase of the breath necessarily inherent in every consonant. It is optional, therefore, either to regard the aspirates as simple consonants, or as compositions with *h*. In this case, we think it proper to follow the system of the different nations, retaining, for instance, in the Indian aspirates, the simple bases, with the addition of the diacritical spiritus asper, and writing *k k̄ k̄̄ t t̄ t̄̄ p p̄ p̄̄ d d̄ d̄̄ b*, whilst in the Hindoostanee,

<sup>1</sup> The best linguistic proof is, that no aspirate can be doubled; when a duplication is intended, the unaspirated sound is placed before the aspirate. From *aka* arises by reduplication not *akka*, but *akka*.

where the aspiration is treated as a new and independent element, we shall write *kh*, *kh*.

We call those combinations of consonants *consonantal diphthongs* in which an explosive sound is combined with the correspondent fricative, as in *kχ*, *kχ̇*, *tš*, *dž*, *ts*, *dz*, *pf*, and others. The history of languages shows that these sounds are particularly easy of formation, and arise frequently out of the simple sounds by a subsequent friction. This etymology is the reason why they are often represented by simple signs, as the Italian *c* and *g* for *tš*, *dž*; the German *z* for *ts*; Greek ζ for *dz*. Our principles, however, will oblige us to resolve all such diphthongs into their simple elements, wherever the real pronunciation, not the etymological origin, is to be indicated.

As for *double consonants*, it will readily be granted, that they ought not to be employed merely to show that the preceding vowel is short and accentuated, but only where the duplication (from the prolongation of the friction or of the moment of touching) is distinctly heard, as in the Arabic or Italian, or the double letter is justified etymologically, as originating in the assimilation of different consonants, or wherever nothing is intended, but a transcription of a foreign orthography, which makes use of double letters.

*On the Application of the General Alphabet to the Alphabets of particular Languages.*

It has been remarked above, that the general alphabet, when applied to particular languages, must be capable as well of simplification as of enlargement. All particular diacritical marks are unnecessary in those languages where none of the bases have a double value; and we write simply *χ*, *θ*, *e*, *o*. Where two sounds belong to the same basis, one only of the signs is wanted; and we may write *χ̇* and *χ̈*, *θ̇* and *θ̈*, *ė* and *ë*, *ȯ* and *ö*. Where, however, the intermediate sound exists between the two contrasted sounds, both the diacritical signs

are indispensable.<sup>1</sup> They are required also, when two or more languages are to be compared with each other, in which the indiffererent or imperfectly known sound of the one is placed by the side of the developed contrast in the other.<sup>2</sup> Again, the same diacritical marks may be used in connection with other than the above-mentioned letters, whenever in particular languages such variations appear.

If further essential differences should be shown, which are not yet represented in the general alphabet, and cannot be expressed analogically, nothing prevents the selection, or, if necessary, invention of other new diacritical signs, without deviating from the principles above developed.

Among these latter cases we may reckon, for instance, the *clicks* of the southernmost African languages, which are formed, not by throwing out the breath, but by drawing it inward. We often produce the same clicks by the same movements of the tongue, but do not use them as articulate elements of speech.

In the *Hottentot* language there are four clicks, in the *Zulu* and other languages of the great African branch only three. When isolated, these sounds are not difficult to pronounce.

The first, which had been written hitherto *q*, is made by pressing the tongue closely upon the middle palate and withdrawing it suddenly, and from the place of its formation is to be reckoned among the *cerebrals*. The second (found principally in the *Hottentot*, but, according to Boyce<sup>3</sup>, also in some words of the *Kaffir* language), arises, from placing the breadth

<sup>1</sup> In the German (compare Grimm, *Gramm.* I, p. 78, 79,) the contrast is developed only in the long  $\bar{e}$  and  $\bar{e}$  and the long  $\bar{o}$   $\bar{o}$ , to which a short  $\check{e}$  and  $\check{o}$  correspond. In most languages the short vowels are not so accurately differentiated as the long ones; this is the reason why the former were not indicated at all in the most ancient languages.

<sup>2</sup> For instance, when the Latin, or Greek, or Gothic *e* and *o* is to be compared with the French  $\hat{e}$  and  $\acute{e}$ , the Italian  $\hat{o}$  and  $o$ .

<sup>3</sup> *Grammar of the Kaffir Language*, p. 4. He writes it *qc*. I myself heard it pronounced by Zulu Kaffirs.

of the tongue in the *palatal* position, and withdrawing it with a suction. The third, generally written *c*, is in the same manner *dental*, as only the tip of the tongue smacks against the upper teeth. The fourth is formed at the side of the tongue, by drawing in the air towards the middle of the mouth from the right or left side. It has been called *lateral*, therefore, and generally rendered by *x*.

The pronunciation of these sounds becomes difficult only when they are connected with other sounds. Whilst the anterior part of the tongue is smacking, the throat can open itself for a *g* or *n̂*, so that these latter sounds are pronounced almost at the same time with the click, or immediately after it.<sup>1</sup> It is incorrect to write the gutturals *before* the clicks, as they can never be pronounced before them.

At the same time, the choice of *c*, *q*, and *x*, as signs of clicks, appears to be inconvenient, since they are taken from the European alphabets, in which they express well known sounds, not bearing any relation to the clicks. Essential to the latter is the peculiarity of stopping in part, and even drawing back the breath, which appears to be most easily expressed by a simple bar *˘*. If we connect with this our common marks for the cerebral or the palatal, a peculiar notation is wanted only for the *lateral*, which is the strongest sound. We propose to express it by two bars *˘˘*. As the gutturals evidently do not unite with the clicks into one sound,<sup>2</sup> but form a compound sound,

<sup>1</sup> Boyce distinguishes only two accompanying gutturals, which he writes *g* and *n*; Appleyard and Grout mention three, *g* and two nasals, *n* and *ng* (*n̂*). The author himself could only distinguish two gutturals, *g* and *n̂*, as connected with clicks by the Zulu Kaffirs, who in the beginning of 1854, sojourned for some time in Berlin.

<sup>2</sup> We cannot, therefore, assent to Grout, who, instead of the former notation proposes the following:

<i>q</i>	<i>q̇</i>	<i>q̄</i>	<i>q̈</i>
<i>c</i>	<i>ċ</i>	<i>c̄</i>	<i>c̈</i>
<i>x</i>	<i>ẋ</i>	<i>x̄</i>	<i>ẍ</i>



we may make them simply to follow, as with the diphthongs. Thus we get the tableau:

Palatals	( <i>qç</i> )	<i>i</i>	—	—
Cerebrals	( <i>q</i> )	<i>!</i>	<i>!g</i>	<i>!ñ</i>
Dentals	( <i>c</i> )	<i>ı</i>	<i>ıg</i>	<i>ıñ</i>
Laterals	( <i>x</i> )	<i>ıı</i>	<i>ııg</i>	<i>ııñ</i>

The difficulty of transcription is greatest in those systems of writing which, originating in an earlier period of the language, and fully developed, have been retained unaltered, whilst the pronunciation has undergone a change, as also in those in which several reformations have left their traces. An instance of this kind has already been mentioned in speaking of the Sanscrit palatals. The differences of European orthography have mostly arisen from similar circumstances. Some such difficulties, however, are presented by almost all existing alphabets which are not of modern formation. As the object of a standard transcription is to avoid, as much as possible, all such incongruity of sound and sign, no other course remains open in such cases than to fix upon a distinct period of the language in question, and to adapt its transcription to the different purposes of rendering either the *actual* pronunciation, or the *ancient* one which had been expressed by the alphabet, and which may be deduced from it by linguistic researches. The difference is generally found to be greater in the vowels than in the consonants, the former being, in all languages, the more changeable element.

The *Arabs* write only three vowels, but pronounce these three letters very differently, according to distinct rules: in like manner, a certain number of consonants have a different pronunciation in different dialects, although in literature they are expressed by means of one and the same written letter. Eli Smith and Robinson (in the work on Palestine) propose to represent the actual pronunciation in the country, and their en-

deavours are to be highly prized;<sup>1</sup> but the linguistic scholar will prefer to follow the written system fixed by literature, and to neglect the varying deviations and shades of modern pronunciation. The *Armenian* alphabet has also undergone peculiar alterations of pronunciation, which may be historically proved.<sup>2</sup> The greatest difficulties, however, are met with in transcribing the *Hebrew* system of punctuation, which, having only in after times been grafted upon the alphabet inherited from former ages, appears to be inconsistent in itself. The labours of modern scholars, in elucidating the historical development of these signs, and comparing it with the traditional and actual pronunciation of the Jews, have not yet led to results on which a complete and well-founded system of transcription might be based.

In conclusion, we present the reader with a number of alphabets transcribed after our own system. We are aware that in many instances further researches must correct and complete our labours. We have followed the best and latest investigations to which we had access in each individual language. The attempt is intended to show the easy applicability of our alphabet to the most different languages; and to induce scholars to follow in the same way, and eventually to correct and improve the details.

<sup>1</sup> Compare also the excellent essay of *Lane* on the modern pronunciation of the Arabic vowels, inserted in the publications of the German Oriental Society.

<sup>2</sup> See Petermann, *Grammatica Armenica*.

AFRICAN LANGUAGES.

*Hottentot, Korana Dialect.*      Appleyard, *Kafir Gramm.* 1850. p. 17.

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">a ā</td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">k̄ h̄</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> <tr> <td>e ē</td> <td>o ō</td> <td>k g n̄</td> <td style="border-left: 1px solid black; border-right: 1px solid black; text-align: center;">χ χʔ</td> <td style="border-right: 1px solid black; text-align: center;">y</td> <td></td> </tr> <tr> <td>i</td> <td>u</td> <td>t d n</td> <td style="border-left: 1px solid black; border-right: 1px solid black; text-align: center;">s -</td> <td style="border-right: 1px solid black; text-align: center;">r l</td> <td></td> </tr> <tr> <td>ai</td> <td>au</td> <td>p b m</td> <td style="border-left: 1px solid black; border-right: 1px solid black; text-align: center;">- -</td> <td style="border-right: 1px solid black; text-align: center;">w</td> <td></td> </tr> <tr> <td colspan="3"></td> <td style="border-left: 1px solid black; border-right: 1px solid black; text-align: center;">tš ts</td> <td></td> <td></td> </tr> </table>	a ā		k̄ h̄				e ē	o ō	k g n̄	χ χʔ	y		i	u	t d n	s -	r l		ai	au	p b m	- -	w					tš ts			<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">a aa</td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">x h</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> <tr> <td>e ee</td> <td>o oo</td> <td>k g ng</td> <td style="border-left: 1px solid black; border-right: 1px solid black; text-align: center;">kh ch</td> <td style="border-right: 1px solid black; text-align: center;">j</td> <td></td> </tr> <tr> <td>i</td> <td>u</td> <td>t d n</td> <td style="border-left: 1px solid black; border-right: 1px solid black; text-align: center;">s -</td> <td style="border-right: 1px solid black; text-align: center;">r l</td> <td></td> </tr> <tr> <td>ei</td> <td>au</td> <td>p b m</td> <td style="border-left: 1px solid black; border-right: 1px solid black; text-align: center;">- -</td> <td style="border-right: 1px solid black; text-align: center;">w</td> <td></td> </tr> <tr> <td colspan="3"></td> <td style="border-left: 1px solid black; border-right: 1px solid black; text-align: center;">c z</td> <td></td> <td></td> </tr> </table>	a aa		x h				e ee	o oo	k g ng	kh ch	j		i	u	t d n	s -	r l		ei	au	p b m	- -	w					c z		
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Clicks

Clicks

Palat. *í*, Cerebr. *!*, Dent. *l*, Later. *#*

— *v*, Palat. *q*, Dent. *f*, Later. *y*.

*Hottentot, Nama Dial.*      Knudsen, *Nama A. B. Z.* Capetown. 1845.

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Clicks

Clicks

a  
e (q) o      *í ! l #*  
i (y) u  
ā ē ǐ ō ũ  
ai au ae ei oi ou ui

a  
e (q) o      *! " ' "*  
i (y) u  
°a °e °i °o °u

Wallmann, *Vocabular und Formenlehre der Namaqua-Sprache.* Barmen. 1854. 8.

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E

**Káfir, #Osa (Amalosa) Dial.**

Appleyard, *Kafir Gramm.* 1850.  
(Boyce 1844).

a ā e ē o ō k g ñ i u k g ñ ai au t d n p b m tš dž χl	h χ χ š - s z f v w	ʔ ll	a e o k g ng i u ty dy ny ai au t d n p b m tsch j kl (khl)	h r r sh - s z f v w	y y y y w w	dhl (thl) l hl
Clicks (f) ! ! #			Clicks (gc) q c x			

**Kafir, Zulu Dialect.**

L. Grout, 1852. *Journ. of the Amer. Or. Soc.*  
vol. III. No. II. p. 421.

k g ñ k g ñ t d n p b m tš kχ χl a ā e ē o ō i ī u ū ai au ao eu	h χ χ š - s z f v w	ʔ ll r ll r ll r ll	k g ng tsh, ty (j, ç, ç, ʎ) (ʒ) t d n p b m tsh, tch r, r, kl, kl (k, k)	h r, r, r (ʒ, ç, ç) (r, r, r) (ʒ, r) sh - (f, s, s̄) s z f v w	y y y y w w	hl (l, t) r l hl hl (l) hl, thl
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Clicks	Clicks
Pal. Cer. Dent. Later.	— Palat. Dent. Later.
í ! ! #	— q c x
íg !g !g !g	— gq (q) gc (c) gx (x)
ín !ñ !ñ !ñ	— ngq (q̄) ngc (c̄) ngx (x̄)
	[nq (q̄) nc (c̄) nx (x̄)]

*Tšuína (Setšuína, Betšuína).* Appleyard, *Kafir Gr.* 1850. p. 51.

<i>a</i>	<i>e o</i>	<i>i u</i>	<i>k - ñ</i>	<i>h</i>	<i>χ χ̂</i>	<i>y</i>	<i>ʔ</i>	<i>a</i>	<i>e o</i>	<i>i u</i>	<i>k - ng</i>	<i>h</i>	<i>g</i>	<i>y</i>	<i>hl</i>
			<i>t d n</i>	<i>s -</i>	<i>r l ʔ</i>						<i>t d n</i>	<i>s -</i>	<i>r l hl</i>		
			<i>p b m</i>	<i>f v</i>	<i>w</i>						<i>p b m</i>	<i>f v</i>	<i>w</i>		
				<i>tš</i>	<i>χl</i>							<i>c, ch</i>	<i>kl</i>		

*Kúa (Makúa, Mosambique).* From oral communications by Prof. W. Peters. 1854.

<i>a ā</i>	<i>e ě</i>	<i>e ē</i>	<i>o ō</i>	<i>i ī</i>	<i>k g ñ</i>	<i>h</i>	<i>š ž</i>	<i>y</i>
					<i>t d n</i>	<i>s z</i>	<i>r l l</i>	
					<i>p b m</i>	<i>f v</i>	<i>w</i>	
						<i>ts</i>	<i>dz</i>	

*Swáheli (Kisuáheli).* Krapf, *Outline of the elem. of the Kisuáheli lang.* 1850.

<i>a</i>	<i>e</i>	<i>o</i>	<i>i u</i>	<i>ai au ei oi</i>	<i>k g (ñ)</i>	<i>χ h</i>	<i>y</i>	<i>a</i>	<i>e</i>	<i>o</i>	<i>i u</i>	<i>ai au ei oi</i>	<i>k g (n)</i>	<i>ç h</i>	<i>y</i>
					<i>t d n</i>	<i>š ž</i>	<i>r l</i>						<i>t d n</i>	<i>s ĵ</i>	<i>r l</i>
					<i>p b m</i>	<i>θ θ̂</i>	<i>w</i>						<i>p b m</i>	<i>t d</i>	<i>w</i>
						<i>f v</i>	<i>w</i>						<i>p b m</i>	<i>f v</i>	<i>w</i>
						<i>tš dž</i>	<i>ts dz</i>							<i>tj ĵ</i>	<i>ts z</i>

*Hereró.* C. Hugo Hahn, *Grundzüge einer Grammatik des Hereró, nebst Vocabular.* 1855. (Rhein. Miss.)

<i>a</i>	<i>e o</i>	<i>i u</i>	<i>ai au</i>	<i>k g ñ</i>	<i>h</i>	<i>š y</i>	<i>r (l)</i>
				<i>k g ñ</i>	<i>š y</i>	<i>r (l)</i>	
				<i>t d n</i>	<i>s z</i>	<i>r (l)</i>	
				<i>p b m</i>	<i>- v</i>		

Printed according to the Standard Alphabet.

*Mpongwe.* A *Gramm. of the Mpongwe lang.* New-York, 1847. (Am. Board on the Gabün)

<i>ā</i>	<i>e ē</i>	<i>o ō</i>	<i>i ī</i>	<i>ai au</i>	<i>k g ñ</i>	<i>- -</i>	<i>š -</i>	<i>y</i>	<i>á</i>	<i>ě é</i>	<i>o ó</i>	<i>i í</i>	<i>ai au</i>	<i>k g n</i>	<i>- -</i>	<i>sh -</i>	<i>y</i>
					<i>t d n</i>	<i>s z</i>	<i>r l</i>							<i>ty j ny</i>	<i>sh -</i>	<i>y</i>	
					<i>p b m</i>	<i>f v</i>	<i>w</i>							<i>p b m</i>	<i>f v</i>	<i>w</i>	

**Fernando Po.** John Clarke, *Introd. to the Fernandian tongue.*  
Part I. 2<sup>d</sup> ed. Berwick on Tweed. 1848. (Bapt. Miss.)

a	ā	k g ñ	h	-	y	a	k g n	h	-	y	
e ē	o ō	t d n	s	-	r l	e o	t d n	s	-	r l	
i ī	u ū	p b m	f v		w	i, y	u	p b m	f v		w
au		tš	dž	kw		ou		tšh	j	q	

**Yórūba.** S. Crowther, a *Gramm. and Vocab. of the Yoruba lang.*  
Seeleys and London. 1852. (Ch. Miss.)

a		k g ñ	h		y	a	k g ng	h		y	
e o			š			e o		s			
e	o	t d n	s		r l	e	o	t d n	s		r l
i	u	(p) b m	f		w	i	u	(p) b m	f		w
ai ei oi oi		tš	dž	kp	gb	ai ei oi oi		e, tš	j	kp	gb

**Oli.**

H. N. Riis, *Elemente des Akwapim-Dialekts der Odschi Sprache.* Basel. 1853. „S.

k g ñ	h			k	g ñ	h	
k̄ ḡ ñ	χ	y		ty, (dsch) dy ny	c	y	
t d n	s z	r		t	d n	s s	r
p b m	f v	w		p	b m	f v	w
a ā				a ā			
e ē	o ō			e ē	o ō		
e ē	o	o ō		e ē	o	o ō	
i ī	u	u ū		i ī	u	u ū	
ai ei oi oi				ai ei oi oi			

According to Christaller (Ch. Miss.) there are two sounds *t'* (*ty*) and *d* (*dy*) differing from *k* (*ky*) and *g* (*gy*.)

**Susu.**

I. W. G. (Amer. Board on the Gabun), on the *Susu*  
Dialect. (Amer. Or. Soc. vol. I. no. IV. 1849. p. 365.)

a		k g ñ	χ	y	ř	a	k g ng	kh	y	rh	
e o			š			e o		sh			
i	u	t d n	s		r l	i	u	t d n	s		r l
		p b m	f		w			p b m	f		w
		dž						dzh			

*Mánde (Mandénga, Mandiŋgo).* Macbrair, a Gramm. of the  
Mandingo lang. London. 1837.  
(Wesl. Miss.)

ɛ	k g ñ	h	y	a	k g ng	h	y
a	t d n	s	r l	a	t d n	s	r l
e o	p b m	f	w	e, ey o	p b m	f	w
i u	tš dž			i u	tj j		
ai oi au				ei oi au			

*Vei.* S. W. Koelle, Outlines of a Gr. of the *Vei* lang.  
London. 1853. (Ch. Miss.)

a	k g ñ	h	χ	y	a	k g w	h r	y
ɛ o	t d n	s z	r l		ɛ o	t d n	s z	r l
e o	p b m	f v	w		e, e o	p b m	f v	w
e o	tš dž gb				e o	dš dš gb		
i u					i u			
au ai ei ei ou ou					au ai ei ei ou ou			

*O'lof (W'lof, Y'lof).* Roger, Rech. philos. sur la lang. *Ouolofc.*  
Paris. 1829.

ɛ	k g ñ	χ h		e	k g, gh ng	kh, hr h	
a	k g ñ	š ž	y	a	ki ghi gn	(ch) (j)	i
ɛ o o	t d n	s z	r l	è, é ë o	t d n	s z	r l
ɛ o o	p b m	f v	w	é eu ó	p b m	f v	w
i u u	tš dž			i u ou	tch dj		

*Hóusa.* Schön, Vocab. of the *Haussa* langu. London. 1843.  
(Ch. Miss.)

ɛ	k g ñ	h y		ě	k g ng	h y	
a	t d n	s z	r l	a	t d n	s z	r l
e o	p b m	f v		e o	p b m	f w	
i u	tš dž ts dz gb			i u	tsh tsh ds ds gb		
ai oi				ei oi			

*Kánuri (Bórnu).* S. W. Koelle, Grammar of the *Bórnu* or *Kánuri* language. London. 1854. and African native literature and a *Kánuri*-English Vocabulary. London. 1854.

e	k g ñ	h -	y
o		š -	
a	t d n	s z	r l
e o	p b m	f -	w
e o	tš dž	ts dz	
e o			
i u			
ai au ei oi ou ui			

Printed according to the Standard Alphabet.

*Nubisch.* Lepsius, Grundzüge der *Nubischen* Grammatik und *Nubisch*-Deutsches Wörterbuch. Berlin. 1856. and Das Evangelium Marci *Nubisch*. Berlin 1856.

a ā	k g ñ	h	y
e ē o o	k' g' ñ'	š	
i ī u ū	t d n	s	r l
ai au	p b m	f	w

Printed according to the Standard Alphabet.

*Konǵára (Dar Fur).* Lepsius, Grundzüge der Grammatik und Wortverzeichnis der *Konǵára* Sprache.

a ā	k g ñ	(h)	y
e ē o o	k' g' ñ'	-	
i ī u ū	t d n	s	r l
ai au	p b m	f	w

Printed according to the Standard Alphabet.

*Galla.*

Ch. Tutschek, a Gramm. of the *Galla* language. Munich. 1845.

a	z - -	h	a	z - -	h
e	k g -	- -	é	k g -	- -
e o	k' g' ñ'	χ -	y	e o	c, q d' ñ' ch - y
i u	t d -	š ž	i u	dy -	z' z'
	t d n	s z	r l	t d n	g z r l
	p b m	f v	w	p b m	f b w
	tš dž			tch, tsh, tš', tš	dj, dž', dž'



*Hieroglyphic.* Lepsius, Das Buch der Aegyptischen Könige. 1855.

(e)									
a	k	-	-	χ					
i	u			š					
	t	-	n	s	r	l			
	p	b	m	f					

*Koptic.*

k	g	(n)	χ		[k]				
k	g	(n)	š	(y)					
t	[d]	n	s	r	l	[t]			
p	b	m	f	(w)	[p]				
ks ps [dz]									
(e)									
a									
e ē o ō									
i u									
ai au ei oi									

*Begá.* (Bišári)

Lepsius, Grundzüge der Gramm. und Wortverzeichniß der *Begá* Sprache.

a	-	·	-	h	
ē	ō	k	g	n	-
i	ī	u	ū	(k)	g
		t	d	n	š
		t	d	n	s
		p	b	m	f
		kw		gw	

Printed according to the Standard Alphabet.

*Abyssinian, Geʒez.* Ludolph, Gramm. *Aethiopia*. Francof. a. M. 1702.

e	·	-	k	h					
a	ā	k	g	-	χ	-	y	k'	
ē	o	ō			š	-			
i	ī	u	ū	t	d	n	s	z	r
				p	b	m	f	-	w
				ts	ts'				

*Abyssinian, Amhāra.* Isenberg, Gramm. of the *Amharic* lang.  
London. 1842. (Ch. Miss.)

e	;	'	-	h	h															
a	ā	k	g	-	χ	χ'	k'	ä	ā	k	g	-	h	ch	k'					
ē	ō	k	g	ń	š	-	y	k'	ë	o	tsh	j	gn	s	-	y	tsh'			
i	ī	u	ū		š	ž			ī	ee	ū	oo		sh	zsh					
		t	d	n	s	z	r	l	t'				t	d	n	s	z	r	l	t'
		p	b	m	f	-	w	p'					p	b	m	f	-	w	p'	
					ts	ts'									ts	ts'				

ASIATIC LANGUAGES.

*Hebrew.* Without vowel points.

e	;	'	-	h				ח	ז	-	ה							
(a)	q							ק										
i	u	k	g	-	χ			כ	ג	-	ח							
		t			š			ט			ש							
					š						ש							
		t	d	n	s	z	r	ל			ת	ד	נ	ס	ז	ר	ל	
		p	b	m	-						פ	ב	מ	-				

With vowel points.

e	;	'	-	h				ח	ז	-	ה							
a	ā	q		χ	χ'			ק			א							
e	ē	o	ō	k	g	-	y	כ	ג	-	ח	ו						
i	ī	u	ū	t				ט			ש							
					š						ש							
		t	d	n	s	z	r	ל			ת	ד	נ	ס	ז	ר	ל	
					θ	θ'					פ	ב	מ	-				
		p	b	m	f	v	w				פ	ב	מ	-				

## Arabic.

$a\bar{a}$	اَ	ح	ع	اَ
$i\bar{i}$	ي	خ	ق	ي
$ai$	اِي	ظ	ك	اِي
$u\bar{u}$	و	ش	ص	و
$ai$	اِي	ز	س	اِي
$au$	اُو	ن	د	اُو
		ت	ث	
		ف	م	
		ب	م	

Über die Aussprache des Arabischen v. Eli Smith,  
bei Robinson, Palästina, Bd. III, Abth. II,  
p. 832 ff. Halle 1842.

$a\bar{a}$	اَ	ح	ع	
$i\bar{i}$	ي	خ	ق	ي
$ai$	اِي	ظ	ك	اِي
$u\bar{u}$	و	ش	ص	و
$ai$	اِي	ز	س	اِي
$au$	اُو	ن	د	اُو
		ت	ث	
		ف	م	
		ب	م	

According to the actual Pronunciation: Smith and Robinson.

$e$	اَ	ح	ع	$\bar{u}$	اَ	ح	ع
$a\bar{a}$	اَ			$a\bar{a}$	اَ		
$e\bar{e}$	ي	خ	ق	$e\bar{e}$	ي	خ	ق
$i\bar{i}$	ي			$i\bar{i}$	ي		
$ai$	اِي	ظ	ك	$ai$	اِي	ظ	ك
$u\bar{u}$	و	ش	ص	$u\bar{u}$	و	ش	ص
$ai$	اِي	ز	س	$ai$	اِي	ز	س
$au$	اُو	ن	د	$au$	اُو	ن	د
		ت	ث			ت	ث
		ف	م			ف	م
		ب	م			ب	م

Persian.

Gramm. v. Mirza Moh. Ibrahim, aus d. Engl.  
v. Fleischer. 1847.

a ā	اَ اِ	kh h	a á	اَ اِ	h h
i ī u ū	ق		i ī u ū	ک	
	k g -	خ ڭ y		k g -	گ ج j
ai au āi ūi	ک گ -		ai au āi ūi	ع ج -	
	t d -	s z		t z -	s z
		š ž			š ž
	t d n	s z r l		t d n	s z r l
		θ θ			s z
p b m	f -	w	p b m	f -	w

Sanscrit.

a ā	अ आ
i ī u ū	इ ई उ ऊ
ṛ ṝ ḷ ḹ ā ī etc.	ऋ ॠ लृ लृ अं इ̇ etc.
ai (ē) āi au (ō) āu ar̄ āṛ	ए ऐ ओ औ अर् आर्

k g ṇ	ह ः	k g	क ग उ	ख ः	ख घ
k ḡ ṇ	ख (ḡ)	k ḡ	च ङ ज श	य	ङ ङ
t d ṇ	श	t d	ट ड ण ष	र ऋ	ठ ठ
t d n	s	t d	त द न स	ल	थ ध
p b m	v	p b	प ब म	व	फ भ

Bopp, Vergleichende  
Gramm. Berlin. 1833.

H. H. Wilson, according to private  
communication 1854: Sanscrit,  
Hindi, Marathi, Bengali.

a á	अ आ
i ī u ū	इ ई उ ऊ
ṛ ṝ ... .. āi in etc.	
é ai ó āu ar ar	

a á	अ आ
i ī u ū	इ ई उ ऊ
ri ri ... .. ay in etc	
e ai o au	

<i>k g n</i>	...	<i>h ħ</i>		<i>k ġ</i>		<i>k ġ n</i>	...		<i>kh gh</i>
<i>č ġ n</i>	<i>s</i>	<i>y</i>		<i>č ġ</i>		<i>ch j n</i>	<i>s</i>	<i>y</i>	<i>chh jh</i>
<i>ṭ ḍ n</i>	<i>s</i>	<i>r ...</i>		<i>ṭ ḍ</i>		<i>t ḍ n</i>	<i>sh</i>	<i>r</i>	<i>th ḍh</i>
<i>t ḍ n</i>	<i>s</i>	<i>l</i>		<i>t ḍ</i>		<i>t ḍ n</i>	<i>s</i>	<i>l</i>	<i>th dh</i>
<i>p b m</i>	...	<i>v</i>		<i>p b</i>		<i>p b m</i>	...	<i>v</i>	<i>ph bh</i>

Bengali.

Graves Chamney Haughton, Rudim. of Bengali Grammar. Lond. 1821.

*a ā*  
*ē ō*  
*i ī u ū*  
*ṛ ṝ ḷ ḹ ḹ ḹ̄*  
*ai au*

*ō ā*  
*ē ō*  
*i ī u ū*  
*ri rī li lī ōng*  
*oi ou*

<i>k g n</i>	<i>h</i>		<i>k ġ</i>	<i>k g ng</i>	<i>h</i>		<i>kh gh</i>
<i>k ġ n</i>	<i>š</i>	<i>y</i>	<i>k ġ</i>	<i>ch j ny</i>	<i>s</i>	<i>y</i>	<i>chh jh</i>
<i>ṭ ḍ n</i>	<i>š</i>	<i>r</i>	<i>ṭ ḍ</i>	<i>t ḍ n</i>	<i>sh</i>	<i>r</i>	<i>th ḍh</i>
<i>t ḍ n</i>	<i>s</i>	<i>l</i>	<i>t ḍ</i>	<i>t ḍ n</i>	<i>s</i>	<i>l</i>	<i>th dh</i>
<i>p b m</i>	-	<i>w</i>	<i>b p</i>	<i>p b m</i>	-	<i>v, w</i>	<i>ph bh</i>

Zend.

<i>g</i>	<i>q</i>	<i>h</i>		ε	𐬵	𐬶	
<i>a ā</i>	<i>k g n</i>	𐬀 𐬁		𐬵	𐬶 𐬷 𐬸	𐬹 𐬺	
<i>e ē</i>	<i>o ō</i>	<i>k ġ n</i>	<i>š š̄</i>	<i>y</i>	𐬻 𐬼 𐬽 𐬾	𐬿 -	𐬀, 𐬁 (𐬀)
<i>i ī</i>	<i>u ū</i>	<i>t ḍ</i>	<i>š ž</i>	<i>r</i>	𐬿 𐬀 𐬁	𐬂 𐬃	(𐬂)
<i>ā etc.</i>	<i>t ḍ n</i>	<i>s z</i>	<i>r</i>	𐬂 𐬃	𐬄 𐬅	𐬆 𐬇	𐬈
<i>ai au</i>		<i>θ θ</i>		𐬂 𐬃	𐬄 𐬅	𐬆 𐬇	
<i>p b m</i>		<i>f v</i>	<i>w</i>		𐬆 𐬇	𐬈 𐬉	𐬊, 𐬋

(ah hm st sk) (𐬀 𐬁 𐬂 𐬃)

Burnouf, Commentaire sur le  
Yaçna. 1833.

e	q g	h		
a á	k g ng	kh gh		
è é o ó	tch djng	ç -	y	
i í	u ú t t -	ch j		
ã, ñ	t d n	s z	r	
ái áo		th dh		
	p b m	f w	v	

Bopp, Vergl. Gramm. Berl.  
1833.

e	kh ...	h		
a á	k g n	c gh		
è é o ó	ç g -	s' -	y	
i í	u ú t - -	s' sh		
ã, ñ	t d n	s z	r	
ái áo		t dh		
	p b m	f w	v	

Brockhaus, Vendidad Sade. Leipzig 1849.

e	q ...	h		
a á	k g n	kh gh		
è é o ó	c j n	ç -	y	
i í	u ú t - -	sh j		
ã, ñ	t d n	s z	r	
ái áo		th dh		
	p b m	f w	v	

**Armenian.**

Ancient pronunciation.

e	h	ϰ	ϰ(ϰ)	
a	k g -	χ χ	ϰ ϰ	ϰ
e ē o ō	k g -	y	ϰ ϰ n o	ϰ
i	u	š ž	ϰ (ϰ) ϰ	ϰ
	t d -		à δ -	ϰ
	t d n	s z	ϰ ϰ ϰ	ϰ ϰ ϰ
	p b m	f -	ϰ ϰ ϰ	ϰ ϰ ϰ

Actual pronunciation. Petermann, Gramm. ling. Armeniae. Berol. 1837.

e	kh	e	kh	
a	g k -	χ χ	kh g	k
e ē o ō	tš dž -	y	tš é é ö ó ç g -	j j
i	u u	š ž	i u ú	s j
ai au	ts dz -		ai au t d -	z
	d t n	s z	d t n	s z
	b p m	f (v)	w	f
				ϰ

## Georgian and Ossitinian.

Rosen, *Ossetische Sprachlehre*. Lemgo  
1846. 4<sup>o</sup>.

a	q	h			a	q	h		
e o	k g -	χ χ <sup>2</sup>		k	e o	k g -	ch gh		k
i u	k' g' -	š ž			u	č' g' -	š' ž'		-
	t d n	s z	r l	t	t d n	s z	r l	t	t
	p b m	f -	w	p	p b m	f w	-	p	p'
	ts dz				ts dz				

## Albanian. (Europa)

J. G. v. Hahn, *Albanesische Studien*. Wien.  
1853.

e		h			ε		χ		
a	k g n	χ χ <sup>2</sup>			a	κ γ ν	χ γ		
e o o	k' g' n'	χ' y	l		ε ω o	κ' γ' ν'	χ' j	λ j	
i u u		š ž			i u u		š š		
ã ë ã õ ù	t d n	s z	r r' l	av ev etc.	τ d ν	σ ζ	ρ pp λ.		
ai (au) ei ui		θ θ		ai (au) ei ui		θ ô			
	p b m	f v			π b m	φ β			
tš dž ts dz ks ps					τř đř τσ đσ ξ ψ				

## Hindustáni.

W. Yates, *Introd. to the Hindustáni langu.*  
Calcutta. 1843.

a ā	á	h h			a á	— ...	h h		
ē ō	q				e o	q			
i ī u ū	k g -	χ χ <sup>2</sup>			i ī u ú	k g -	kh gh		
ā ē ī ō ū	k' g' -	- -	y		an etc.	ch j -	- -	y	
ai au	t d -	š ž	r		ai au	t d -	sh zh	r	
	t d -	s z				t z -	s z		
	t d n	s z	r l			t d n	s z	r l	
		θ θ					s z		
	p b m	f -	w			p b m	f -	w	

Gilchrist, a Gramm. of the *Hindoostani* H. H. Wilson, according to private communication. 1854. Calcutta. 1796.

<i>u a</i>	... ..		<i>h h h</i>		<i>a á</i>	<i>ái a</i>		<i>h h</i>
<i>e ó</i>	<i>q</i>				<i>e o</i>	<i>k</i>		
<i>i ee</i>	<i>óñ oo</i>		<i>k g -</i>		<i>i i</i>	<i>u ú</i>		<i>k g -</i>
<i>añ etc.</i>	<i>ch j</i>		<i>kh gh</i>		<i>y añ etc.</i>	<i>ch j</i>		<i>kh gh</i>
<i>y ou</i>	<i>t d</i>		<i>sh zh</i>		<i>ř ai au</i>	<i>t d</i>		<i>sh zh r</i>
	<i>tw thw</i>		<i>sw th</i>			<i>t z</i>		<i>s z</i>
	<i>t d n</i>		<i>s z</i>			<i>t d n</i>		<i>s z</i>
	<i>p b m</i>		<i>f</i>			<i>ř z r l</i>		<i>ř z r l</i>
						<i>p b m</i>		<i>f - w</i>

*Malayan.*

J. Crawford, a Gramm. and Dict. of the *Malay* langu. Lond. 1852.

<i>a</i>	(s) (°)		(h) h		<i>a</i>	(a) (a)		(h) h
<i>e o</i>	(q)				<i>e o</i>	(k)		
<i>i u</i>	<i>k g ñ</i>		(χ) (χ')		<i>i u</i>	<i>k g ng</i>		(x) (g)
<i>ai au</i>	<i>k g ñ</i>		- - y			<i>ch j ñ</i>		- - y
	<i>t d</i>		(š) -			<i>t d</i>		(s')
	(t) (d)		(š) (z)			(t) (ll) -		(s) (l')
	<i>t d n</i>		<i>s (z)</i>			<i>t d n</i>		<i>s z r l</i>
			(θ) (θ')					(ç) (z)
<i>p b m</i>	(f) -		<i>w</i>		<i>p b m</i>	(f) -		<i>w</i>

The letters included in brackets occur only in Semitic words.

*Javanese.*

J. Crawford, a Gr. and Dict. of the *Mal.* langu. p. XVI.

<i>a ā</i>	- ' .				<i>a á</i>	- a		
<i>e o</i>	<i>k g ñ</i>				<i>e o</i>	<i>k g ng</i>		
<i>e o</i>	<i>k g ñ</i>				<i>e o</i>	<i>ch j ñ</i>		<i>y</i>
<i>i u</i>	<i>t d</i>				<i>i u</i>	<i>t d</i>		
	<i>t d n</i>		<i>s r l</i>			<i>t d n</i>		<i>s r l</i>
	<i>p b m</i>		<i>w</i>			<i>p b m</i>		<i>w</i>



*Turkish.*

A. Jaubert, *Elém. de la Gramm. Turke.* 2<sup>d</sup> éd.  
Paris 1833.

a	ə	o	k	g	h	h	a	...	...	h	h				
e	ə	o	q				e	o	q						
i	y	u	k	g	-	χ χ'	i	u	ou	k	g	-	kħ	għ	
ai	ei		k	g'	n'	š ž	ai	ei	tch	dj	ñ	ch	j	y	
			t	d	-	s z				t	z	-	ç	z	
			t	d	n	s z	r l			t	d	n	s z	r l	
						θ θ'							s z		
			p	b	m	f	-	w		p	b	m	f	-	w

*Mongolian.*

J. J. Schmidt, *Gramm. d. Mongol. Spr.*  
Petersb. 1831. 4.

a	[k]	g	n	χ	[χ']	y	a	[k]	g	n	ch	[gh]	j						
e	ə	[o]	[t]	d	n	s	[z]	r	l	e	ö	[o]	[t]	d	n	ss	[s]	r	l
i	[y]	u				[š]	-			i	[ii]	u				[sch]	-		
			-	b	m	-	-	w					-	b	m	-	-	-	w
ao	ai	[oi]	[ui]	[tš]	[dž]	ts	[dz]	ao	ai	[oi]	[ui]	[tšch]	[dšč]	ts	[ds]				
ei	[oi]	[ui]	ii					ei	[öi]	[üi]	ii								

The letters included in brackets are of a later formation.

*Chinese.*

From oral communication by the Revds J. Gough and  
T. M' Clatchie. (Ch. Miss.) in 1854.

ə					ħ	h					
α			k	g	n	χ	-	k			
e	ə		k	g'	n'	χ'	-	k'			
e	ə	o	t	(tš)	d	(dž)	-	š	ž	f	(tš')
i	y	u	t	(ts)	d	(dz)	-			f	(ts')
ṅ	m	r	z	t	d	n	s	z	l	f	
ai	ei	au	eu	p	b	m	f	v	w	ǰ	
ā	ē	ī	ū	ū							
an	en	in	on	un	on						

For the representation of the compound sounds *tš*, *dž*, etc. by simple bases, see above p. 42.

Steph. Endlicher, Anfangsgründe der *Chines.* Gramm. Wien. 1845.

e			h h		
a	k k	'	-		k
ë o	č č	'n	g'	-	y, i č'
i u	tč tč	-	sh sh		tč
ai ei ao eu	ts ts	-			ts'
an en etc.	t t	n	ss s	l	č
ang eng etc.	p p	m	f f	w, u	p'

## AMERICAN LANGUAGES.

*Greenlandish.* S. Kleinschmidt, Gr. der Grönl. Spr. Berlin. 1851.

a		h -		a		h -
e o	k ñ	χ χ'		e o	k rñg	r' r
i u	k' ñ'	χ' y		i u	u ng	g y
		š ž				ss ss
	t n	s z	l l		t n	s s
	p m	f v			p m	f v

*Kri.* (Hunter), The faith and duty of a Christian, translated into the language of the Cree Indians, North-West-America. Lond. 1855.

(e)

a ā	k - -	h		u a	k - -	h
ē -	t' - -	χ	y	ā -	ch - -	' y
i ī	u	t - n	s	i e	oo	t - n
ai au	āi ēu	p - m	- w	y, i ow	aw ew	p - m

*Mikmak.* The Gospel accord. to St. Matthew in the *Micmac* lang., printed by the Brit. & For. Bible Soc. Charlottetown. 1853.

e	k g ñ	h	y	u	c, k g n	h	y
a ā	t d n	s	l	a a	t d n	s	l
e ē	o o	p b m	- w	e ε	o σ	p b m	- w
i ī	u ū	tš dž		i i	u u	q j	
ai au	iū			t τ	q		

**Iroquois.** Du Ponceau, *Mém. sur le syst. Gramm. des Langues de quelques nations de l'Amérique du Nord.* Paris 1838. p. 103.

a	k -	h	y	a	k -	h	j
e o	t n	s	r	e o	t n	s	r
i u	- -	-	w	i ou	- -	-	ou
ã ë ò				an ein on			

**Mohegan.** Edwards, *Observ. on the Mohegan lang.* A new edit. with notes by J. Pickering. Boston. 1823.

ē ē̄		h		e u		h	
a ā	k g n	χ	y	a au	qk g n	gh	y
ē ò	t d n	s		ey o	t d n	s	
ī ū	p b m	-	w	ee u, oo	p b m	-	w, u
	tš				ch		

**Tširoki.** Wofford, *The American Sunday School Spelling book.* New-York 1824.

ē	k g -	h	y	v	k g -	h	y
a	t d n	s	l l	a	t d n	s	l l
e g o	- - m	-	w	e v o	- - m	-	w
i u	kw dz			i u	q z		

**Muskoki.** Dav. Winslett, *Muskokee hymns.* Park Hill. 1851. (Presbyter. Miss.)

ē	k ñ	h	y	v	k n	h	y
a	t n	s	l l	a	t n	s	l r
e g o	p m	f	w	ae oe o	p m	f	w
i ū u	tš			e ue u	c		
ai au				i au			

**Otomi.** Lonte Piccolomini, *Gramm. della lingua Otomi.* Roma. 1811.

ē		h		ē		h	
a ā	k g ñ	χ -	y	uā cc, qq, c, qu	g, gu n	x -	j
ē	t d n	s z	r	z	t	d n	c z r
e o	p b m	f -	-	e o	p	b m	ph -
i ū u	tš ts dz ny			i y u	cc tz z nn, ñ		
ã ë ï ò ũ				á é í ó ú			

Indian languages of  
North America.

John Pickering, an Essay on a uniform orthography for the Indian languages of North America. Cambridge. 1820. 4.

a	a																																																																								
e o	e o																																																																								
i u	i u																																																																								
ai au	ai au																																																																								
ã ê ÿ õ ü	a e i o u																																																																								
<table style="display: inline-table; border-collapse: collapse; vertical-align: middle;"> <tr><td style="padding: 0 5px;">k</td><td style="padding: 0 5px;">g</td><td style="padding: 0 5px;">ñ</td><td style="border-left: 1px solid black; padding: 0 5px;">h</td><td style="padding: 0 5px;">χ</td><td style="padding: 0 5px;">χ̇</td></tr> <tr><td style="padding: 0 5px;">k̇</td><td style="padding: 0 5px;">ġ</td><td style="padding: 0 5px;">ñ̇</td><td style="border-left: 1px solid black; padding: 0 5px;">š</td><td style="padding: 0 5px;">ž</td><td style="padding: 0 5px;">y l</td></tr> <tr><td style="padding: 0 5px;">t</td><td style="padding: 0 5px;">d</td><td style="padding: 0 5px;">n</td><td style="border-left: 1px solid black; padding: 0 5px;">s</td><td style="padding: 0 5px;">z</td><td style="padding: 0 5px;">r l</td></tr> <tr><td style="padding: 0 5px;"></td><td style="padding: 0 5px;"></td><td style="padding: 0 5px;"></td><td style="border-left: 1px solid black; padding: 0 5px;">θ</td><td style="padding: 0 5px;">θ̇</td><td style="padding: 0 5px;"></td></tr> <tr><td style="padding: 0 5px;">p</td><td style="padding: 0 5px;">b</td><td style="padding: 0 5px;">m</td><td style="border-left: 1px solid black; padding: 0 5px;">f</td><td style="padding: 0 5px;">v</td><td style="padding: 0 5px;">w</td></tr> <tr><td style="padding: 0 5px;"></td><td style="padding: 0 5px;"></td><td style="padding: 0 5px;"></td><td style="border-left: 1px solid black; padding: 0 5px;">ts</td><td style="padding: 0 5px;">dz</td><td style="padding: 0 5px;"></td></tr> </table>	k	g	ñ	h	χ	χ̇	k̇	ġ	ñ̇	š	ž	y l	t	d	n	s	z	r l				θ	θ̇		p	b	m	f	v	w				ts	dz		<table style="display: inline-table; border-collapse: collapse; vertical-align: middle;"> <tr><td style="padding: 0 5px;">k</td><td style="padding: 0 5px;">g</td><td style="padding: 0 5px;">—</td><td style="border-left: 1px solid black; padding: 0 5px;">khgh</td><td style="padding: 0 5px;"></td><td style="padding: 0 5px;"></td></tr> <tr><td style="padding: 0 5px;">tsh</td><td style="padding: 0 5px;">dj, dsh,</td><td style="padding: 0 5px;">dzh</td><td style="border-left: 1px solid black; padding: 0 5px;">sh zh</td><td style="padding: 0 5px;">ny, ni</td><td style="padding: 0 5px;">y ly</td></tr> <tr><td style="padding: 0 5px;">t</td><td style="padding: 0 5px;">d</td><td style="padding: 0 5px;">n</td><td style="border-left: 1px solid black; padding: 0 5px;">s z</td><td style="padding: 0 5px;"></td><td style="padding: 0 5px;">r l</td></tr> <tr><td style="padding: 0 5px;"></td><td style="padding: 0 5px;"></td><td style="padding: 0 5px;"></td><td style="border-left: 1px solid black; padding: 0 5px;">th dh</td><td style="padding: 0 5px;"></td><td style="padding: 0 5px;"></td></tr> <tr><td style="padding: 0 5px;">p</td><td style="padding: 0 5px;">b</td><td style="padding: 0 5px;">m</td><td style="border-left: 1px solid black; padding: 0 5px;">f v</td><td style="padding: 0 5px;"></td><td style="padding: 0 5px;">w</td></tr> <tr><td style="padding: 0 5px;"></td><td style="padding: 0 5px;"></td><td style="padding: 0 5px;"></td><td style="border-left: 1px solid black; padding: 0 5px;">ts, tz</td><td style="padding: 0 5px;">ds, dz</td><td style="padding: 0 5px;"></td></tr> </table>	k	g	—	khgh			tsh	dj, dsh,	dzh	sh zh	ny, ni	y ly	t	d	n	s z		r l				th dh			p	b	m	f v		w				ts, tz	ds, dz	
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POLYNESIAN LANGUAGES.

*Tahiti.*

Λ Gramm. of the *Tahitian* dialect of the Polynesian language. Tahiti. Print. at the (London) Miss. Prefs. 1823. 8.

a ā	k (g) ñ	h -	y	a	k g ng	h -	i
e ē o ō	t (d) n	s z	r l	e o	t d n	s z	r l
i ī u ū	p (b) m	f v	w	i u	p b m	f v	w
ai ae au ao ei					ai ae au ao ei		
eu ou oi ui ue					eu ou oi ui ue		

The hard and soft explosive letters are not quite distinct.

*Fidži.*

Hazlewood, a compend. Gramm. of the *Feejeean* lang.  
Vewa, Feejee. 1850. (Wesl. Miss.)

<i>a ā</i>	<i>k g ñ</i>	<i>h -</i>	<i>y</i>	<i>a</i>	<i>k k ng</i>	<i>h -</i>	<i>y</i>
<i>e ē o ō</i>	<i>t d n</i>	<i>s θ</i>	<i>r l</i>	<i>e o</i>	<i>t t n</i>	<i>s c</i>	<i>r l</i>
<i>i ī u ū</i>	<i>(p) b m</i>	<i>(f) v</i>	<i>w</i>	<i>i u</i>	<i>(p) (p) m</i>	<i>(f) v</i>	<i>w</i>
<i>ai au ei eu oi ou</i>	<i>(dž) ñk ñg nd mb</i>			<i>ai au ei eu oi ou</i>		<i>(j) q q d b</i>	

*South Australian.*

Teichelmann and Schürmann of the Lutheran  
Miss. Soc., *Outlines of a Gramm., Vocab.*  
and *Phraseology of the aborig. lang. of*  
*South Australia*, spoken in and around Ade-  
laide. Adelaide 1846.

<i>a ā</i>	<i>k (g) ñ</i>	<i>y</i>	<i>a ā</i>	<i>k (g) ng</i>	<i>y</i>
<i>e o</i>	<i>t (d) n</i>	<i>r l</i>	<i>e o</i>	<i>t (d) n</i>	<i>r l</i>
<i>i u</i>	<i>p (b) m</i>	<i>w</i>	<i>i u</i>	<i>p (b) m</i>	<i>w</i>
<i>ai au oi ui</i>			<i>ai au oi ui</i>		



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