others thus invented "for the occasion" have won general acceptance and passed into common use. An *appropriate* English name is greatly wanted for them.

Works to be Read.

The reading for the Dictionary having now nearly reached the end of its second year, it is desirable that during the year which remains for its completion all important works should be finished. Our wants now lie, not so much among the words of general literature, as among the special terms of art, science, commerce, games, manufactures, and the like.

In particular we shall be glad of all and every assistance in reading Early books or articles on Astronomy, Chemistry and Alchemy, Mathematics, Natural Philosophy, Mechanics, Machinery, Civil Engineering, Geology, Manufactures, Commerce, Insurance, Maritime Law, Farming, Electricity, Telegraphy, Engineering, Military Tactics, Grammar, Music, Dress, Games and Sports (esp. 18th c.). Such books may not be interesting reading, but all who try find it interesting to extract them for the Dictionary.

The early Transactions of the Learned Societies should be read to catch the first appearance of terms which have since become familiar, and especially the Philosophical Transactions of the Royal Society. The works of Robert Recorde, 16th cent. are still to be read; so, to name a modern book, is Todd and Bowman's Physiological Anatomy. Among early Grammars not read are Bullokar's and Lilly's. The Statutes of the Realm ought to afford many words.

Friends having books on any of these subjects, which they cannot themselves undertake to read, will greatly oblige by lending them to the Editor, who feels that he has not yet received in this respect the assistance which might easily be given to him, and which was so liberally given to his predecessors twenty years ago.

XI.—SOUND-NOTATION. By Henry Sweet, M.A.

The problem of sound-notation is as old as civilization itself, but it is only of late years that that of *scientific* sound-notation has become urgent. There is now a general conviction among philologists of the necessity of a general alphabet, but with utter discord of opinion as to the means of attaining it. Most hold with some modification of the Roman alphabet, each phonetician employing a modification of his own. Of *organic* alphabets, which are based on a physiological analysis of the actions of the speech-organs, Brücke's and Merkel's may be said to have come still-born into the world, while Bell's *Visible Speech* attracted great attention at the time, although still little known, except by name, outside a small circle of his own pupils.

My objects here are 1) to consider what is the best possible modification of the Roman alphabet, 2) to show that such an alphabet is inferior to Bell's, and 3) to describe an improved and extended form of both.

Modifications of the Roman Alphabet.

Of the two fundamental defects of the Roman alphabet, namely the arbitrariness of its symbols, and their limited number, it is the latter which most imperatively calls for reform. The former, indeed, being inherent in the alphabet itself, can only be remedied by abandoning that alphabet altogether—a contingency which, till comparatively lately, has hardly been taken into account at all, and is still ignored by most phoneticians.

The Roman alphabet can be supplemented in five distinct ways:

1) by adding new letters—ȝ, ɬ, þ.
2) by diacritics—ā, ä, ñ.
3) by turned letters—ə, ɐ, ɔ.
4) by italics and capitals—*a*, A, *ə*.
5) by digraphs—th, dh, n*j*.

Of all these expedients, the first is the one which has always been the most obvious and popular. Pitman's Phonotypy even goes so far as to provide simple signs for diphthongs, such as the English 'long *i*,' and consonant-groups, such as (tʃ). As a general rule it may be said that the more inexperienced and ignorant the reformer is, the more reckless he will be in adding new types. The main objection to new types is, of course, the trouble and expense, except in those cases where the new letters are already provided in the printing-office. There is also the difficulty of applying uniform modifications to a variety of letters, some of which, such as g, are already cumbrous enough.

The same objections apply also, though in a less degree, to *diacritics*, which, as Mr. Ellis says, "act as new letters." The best known of the diacritic alphabets is Lepsius's *Standard Alphabet*, thus criticised by Bell (*Visible Speech*, p. 99): "(It) consists of Roman and Greek letters, varied by the addition of diacritic marks. Seventeen diacritics are used above, and fourteen are used below the body of the letters; so many as three diacritics being in some cases applied to a single body. The number of lower-case letters thus employed exceeds 280, and of these above 200 require to be cut for every fount used." A special objection to diacritics is their want of compactness, and they are always troublesome to write (though not more so than many of the new letters that have been proposed), as we see in our ordinary dotted *i*s. They have, however, the great advantage over new letters of giving uniform modifications of a variety of letters, and also of being more accessible in an ordinary printing-office.

The third way, that of *turning* the letters, which has been largely developed in Ellis's *Palæotype*, gives new letters without trouble or expense. Such forms as ə and ɔ are, indeed, infinitely superior to many of the montrosities that have from time to time been proposed as new types. But it is limited in its application.

The use of *italics* and *capitals* has many of the advantages of turning, but makes writing troublesome, and small capitals are not always accessible.

Digraphs, lastly, have nothing but convenience to recommend them. They are sprawly, especially when in minutely accurate writing of sounds they develope into *trigraphs*, and are sometimes ambiguous. A diagraph is, however, generally written easier and quicker than a new type, and is often read as easily.

It is evident that all these expedients fall under two main heads:

1) those which require new types to be cut;

2) those which require only the old types;

and that if the question of reform is to be mainly guided by considerations of typographical convenience, only those modifications can be adopted which fall under the second head, namely the last three of those first enumerated, together with a few out of the first two classes of letters. That it is possible to frame a minutely accurate alphabet without exceeding the resources of an ordinary printing-office has been conclusively shown by Ellis's *Palæotype*, on which my own *Narrow Romic* is mainly founded. We may in short say that the main result of the manifold experiments made in England up to the publication of my "Handbook of Phonetics" was the rejection of the new-type and diacritic systems, or, in other words, the subordination of compactness to general accessibility. Whatever may be said against the English systems, they at least provided every writer and printer with the means of representing the minutest shades of sound with the least possible delay, trouble, or expense. The importance of this becomes evident when we consider that it was mainly the typographical difficulties of the "Standard Alphabet" which caused its disuse by missionaries and travellers, for whom it was specially intended. Palæotype and Narrow Romic still continue to be the only approach to a universal alphabet with Roman letters.

However, these principles have met with no favour out of England, and the latest Continental alphabet—the Swedish, noticed in my last Address (*Trans.* 1877–9, p. 396 foll.)—follows directly opposite ones, being supplemented entirely by new types, diacritics being employed only for quantity,

tone, etc., and consisting entirely of italics. Although this alphabet is intended only for the Swedish dialects, it employs no less than eighty-eight elementary letters, and as a large number of diacritics are required, the number of types runs up to several hundred. If this alphabet were extended to all languages, and its principles were carried out rigorously and minutely, the number of letters would rise to as many thousands.

In my Handbook the old-type principle was more severely tested than in Mr. Ellis's works (Address, p. 396 foll.), the result of which was "the break down of digraphs in any minutely accurate system." But, as I have also said, we must not rush into the opposite extreme of banishing them entirely. It is quite visionary to attempt to have a new letter for every minute shade of sound, which is not attempted even in Visible Speech. The radical defects of the Roman alphabet are so incurable that any extension of it must necessarily be a very unsatisfactory compromise, although all beginners think they can turn out a perfect scheme by rigorously applying some one principle. It seems to me that, putting all our experience together, the following is the only practical compromise:

1) abolish the present use of capitals, as is done in Bell's and the Swedish alphabet;
2) after determining the values to be assigned to the existing letters, supplement them,
3) by turned letters,
4) by new types, beginning with those already provided, and always reserving the right of employing digraphs occasionally;
5) denote general modifications, such as nasality, by italic letters;
6) mark quantity, stress etc., by separate signs on a line with the other letters.

Thus, I would denote mixed vowels by two dots instead of the (h) employed by Mr. Ellis and myself, using (ë) for (eh) (ü) for the Swedish (u). Even if we adopted only those

dotted letters which are in common use, retaining the digraphs (ɔh) and some others, the Narrow Romic vowel-notation would become practically almost as manageable and compact as can be expected from any modification of the Roman alphabet. In the consonants ʒ and ȝ would be substituted for (gh) and (dh), etc. Nasalization and palatalization would be indicated by (*n*) and (*j*), quantity by a simple upright stroke (provisionally by ı), stress by a point. This method is in every way preferable to the ordinary one of placing these marks as diacritics above and below the letter modified, which it is besides impossible to carry out consistently and minutely in practice. Even if we allow only two degrees of quantity and stress, and four tones, which is utterly inadequate, we get eight diacritics, with a large number of special combinations. The attempt to form new letters for every variety of nasalized, etc., sounds, is equally visionary, and if italics were limited to the function of general modifiers, such digraphs as (a*n*, s*j*), etc., would not cause the slightest inconvenience, and (s*j*), at least, is less clumsy and scarcely less compact than any of the attempts I have seen to combine *s* and *j* into one letter.

There is, however, a fatal obstacle to the general adoption of such an alphabet for international scientific purposes, namely, the impossibility of agreement as to its details. It is a natural consequence of the fundamental arbitrariness of the Roman alphabet, whose elementary symbols have no definite relations either to one another or the sounds they represent, that the values of these symbols vary almost indefinitely in different languages, and consequently that any general system stands in a very different relation to each national orthography, which approaches it with special associations of its own. Hence such irreconcileable contrasts as the "Roman" and "English" values of the vowels, and the impossibility of agreeing on a basis even for the rough practical system required for spelling reform purposes. The ridicule which phonetic spelling invariably excites in uneducated minds, and the dislike with which every phonetician regards all phonetic notations except the one evolved by himself, are simply the

result of an instinctive and rational protest against cross-associations, or, in other words, against the Roman alphabet itself.

Even if we limit ourselves to a single book, we find no less than four different systems enshrined in Mr. Ellis's Early English Pronunciation, to which he has since added a fifth,[2] while I myself in my Handbook employ two, one of which has to be varied to suit each language. Prof. Storm, again, in his *Engelsk Filologi*, seems in some respects to ignore the results of English experience, and has special types made for an alphabet whose limited range and want of elasticity makes it useless to any one but himself, even if it were generally accessible. In short, every new book brings a new alphabet. As phonetics is studied more and more, so will the number of books increase, each with its own notation, these notations becoming more and more complex, till at last comparative phonology will become a sheer impossibility, as, indeed, it nearly is already.

Even if the impossible were to happen, and such a general alphabet were accepted, its essential complexity and arbitrariness would make it very difficult to learn, and it would be impossible to secure it against misinterpretation. The temptation to avoid inconvenient symbols in writing each language would also infallibly lead to inaccurate compromises and substitutions.

It is, in short, clear that the question of introducing an entirely new organic alphabet is not a mere theoretical consideration, but is of vital practical importance. Such an alphabet, formed by the systematic combination of a few fundamental signs denoting the elementary actions by which all sounds are formed, would be free from the defects of any possible modification of the Roman alphabet. As its letters would all stand in a definite relation to one another and to the sounds they represent, they would be learnt with ease, and as every stroke in them would have a meaning, their number might be extended almost indefinitely without taxing the

[1] To which now add his "Dimidian."

memory, just as the nine digits of arithmetic may be combined indefinitely. These qualities would also secure it against arbitrary misapplication. There would be no cross-associations with the ordinary Roman orthographies. It would also be perfectly impartial, every simple sound having a simple sign, so that the English *th* and the German *ch* would be put on a perfect level with *k*, *s*, etc. The value for scientific purposes of an alphabet in which every letter would be practically a diagram of the actions by which the sound is produced would be incalculable, and the different varieties of such a vowel as (a), for instance, would appear in their true light, namely, as perfectly distinct sounds, hitherto confounded simply by an accident of defective notation. The rationale of sound-change would then become self-evident in most cases by the mere juxtaposition of the symbols.

The objection oftenest urged against the adoption of such an alphabet is, that being based on a physiological analysis of the actions of the organs of speech, each advance in our analysis, and each correction of earlier errors, will involve a modification or enlargement of the alphabet. The natural answer to this is that perfection in all practical matters can never be reached without repeated trial, and that long experience is required to determine what are the best shapes of the letters—the simplest and most distinct, how the words are to be divided, and many other similar questions. Also that an alphabet in which the facts already established were embodied on a systematic and consistent plan would itself be a most powerful instrument of progress. The question is not whether we have arrived at an absolutely perfect and final analysis of speech-sounds, but simply whether we have a sufficient number of firmly-established results to form the basis of an organic alphabet which for scientific purposes is an improvement on any possible modification of the Roman alphabet. I answer confidently, Yes. An alphabet which could stand such tests as *Visible Speech* was subjected to by Mr. Ellis and other eminent phoneticians (*V. S.* p. 23 foll.), an alphabet too whose very structure makes it capable of indefinite expansion and elaboration, must yield at least a

solid foundation. Mr. Bell's system was, unfortunately, announced too confidently, he himself saying (*V. S.* p. 19): "The invention . . . is now, it is believed, perfect for its purposes, and will probably be found to require no additions or alterations, however extended its uses may become." When it was found to contain several errors of analysis, especially in the consonants, even the inventor's son having afterwards modified some of its details, and also to be incomplete, there was a natural reaction, shared also by Mr. Ellis, who, though still giving Visible Speech the first rank among alphabets, does not advocate any longer its practical use for phonetic purposes, urging that our knowledge is not advanced enough to base a general alphabet on. I think, however, he much exaggerates the uncertainty of the results of our analysis of speech-sounds. If we impartially survey the whole field of phonetic knowledge, we shall see that the great majority of the facts are really as firmly established as anything can well be. It is, for instance, absolutely certain that *p*, *b* and *m* are all formed by the lips, and that *k*, *g* and *ng* are all formed by the back of the tongue, also that *p*, *b*, *k*, *g* are formed by complete stoppage, that *m* and *ng* are nasal, and so on. These are certain results which no amount of physiological, acoustic, or any other kind of scientific investigation can possibly modify, at least as far as their symbolization is concerned. Again, it is by no means certain that our present views on the formation of voice are final, but there is no doubt that there *is* such a thing as voice, that it is inherent in *b*, *m*, *g*, etc., and that *b* stands in the same relation to *p* as *g* does to *k*, as regards the presence and absence of this element. Even if we knew nothing more than this parallelism, without having any idea of the real nature of voice, and denoted *b* and *g* by an arbitrary but consistent modification of the signs for *p* and *k*, we should attain a practically permanent result. The vowels have always offered greater difficulties, but many of the main divisions of palatal, labial, high and low, etc., have been agreed on long ago. As a matter of fact, Bell's analysis of the vowels is so perfect that after ten years incessant testing and

application to a variety of languages, I see no reason for modifying its general framework.

The fact of Bell's vowel-system having hitherto been found adequate does not, of course, involve that such will be the case twenty, or even ten years hence. Nor is there any reason why Visible Speech may not hereafter be rejected entirely in favour of some fundamentally different alphabet. But this further step towards ideal perfection will not come of itself, or be reached by a leap: it must be toiled up to slowly and painfully, and as long as we are hampered with makeshift adaptations of the Roman alphabet, our advance will continue to be a mere crawl.

The first condition of progress is that practical phonetics should be made a study accessible to every philologist—that it should be *popularized* (from a scientific point of view). This can only be effected by means of an organic alphabet, which keeps the mechanism of the sounds continually before the learner's eyes, and makes those comparative studies easy which are almost impossible with the Roman alphabet. The popular idea that the Roman alphabet is easier in itself than an organic one, is simply due to the fact that a word spelt phonetically in Roman letters is generally recognizable with more or less difficulty even by unphonetic readers, while the organic symbols are, of course, utterly unintelligible. But the recognition by eye of such a phonetically spelt word as (faðə) does not bring with it the slightest knowledge of its phonetic structure. If the reader is told that this same word is pronounced (faːðər) in Scotch, he recognizes it with still greater ease as "father," but if asked to explain the difference between the (a) of the one spelling and the (*a*) of the other, and to pronounce them, is totally at a loss. When, however, he has learnt these facts, and has associated them, not with the arbitrary symbols (a) and (*a*), but with the organic ʃ and ɟ, he has not only acquired phonetic knowledge, but also the means of incessantly recalling it to his mind, the height of the symbol being associated with the height of the tongue. Even if obliged afterwards to employ Roman letters, such a student will be able to do so only by mentally

transliterating them into the organic symbols—in short, whatever the character he reads, he will always *think* in the organic letters. Of course, such an alphabet as Visible Speech has to be learnt, but this really involves only learning the meaning of a few fundamental marks and the principles of their application, which can be acquired by any one in a few hours. To read such an alphabet fluently requires, of course, considerable practice, but the student will acquire a perfect command of it long before he has mastered the actual facts of phonetics embodied in it. The real difficulty is *the thing itself*, namely, the facts of phonetics, whose difficulties are largely increased by a bad notation like the various make-shift Roman-letter ones, and are simply reduced to their natural proportions by a rational notation. If non-Sanskritists will take the trouble of learning the enormously complex Sanskrit alphabet, which gives the key to only one language, merely for comparative purposes, the comparative phonetician cannot grudge the trouble of attaining the phonetic key to all languages, which is besides in itself the easiest of all possible alphabets.

These views are not the result of desultory theorizing, but of the practical experience of myself and my fellow-worker, Mr. H. Nicol. We both studied practically under Mr. Bell himself, and have worked with his alphabet ever since, employing it exclusively in our private memoranda and correspondence with one another. We had, however, till lately no intention of advocating its general use among philologists, thinking that a general Romic system would excite less prejudice and do well enough for a time. However, the considerations set forth have made us change our minds during the last two years, and we have been driven by sheer necessity to have types cut for a reformed organic alphabet for our own use. The expense of the undertaking has been shared equally between us, but the use of the new types will be free to any member of the Society who wishes to employ them in any paper printed in our Transactions.

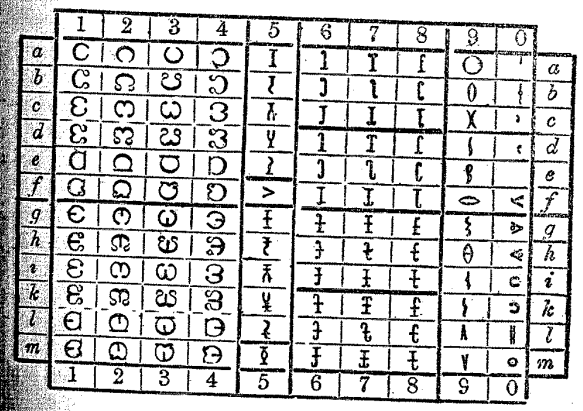
As I have had more leisure and opportunity for phonetic work than Mr. Nicol, most of the modifications of Bell's

original alphabet have been devised by myself, but they have all been subjected to Mr. Nicol's criticisms and approval before final adoption, as also to the criticisms of Mr. Ellis and Dr. Murray.

Bell's Visible Speech.

As Bell's book (*Visible Speech*, by Alex. Melville Bell. Inaugural Edition, 1867)[1] is now practically inaccessible to ordinary students, and as the want of key-words makes it difficult of comprehension to the untrained reader, I have tried to make the following abstract of it full and clear enough to supersede reference to it for ordinary purposes, and at the same time as brief as possible, by omitting detailed explanations of universally-accepted facts of phonology. Wherever Bell's views are obscure, or diverge from my own or those of others, I have quoted his own definitions.

Bell's complete alphabet is shown in the annexed table, reproduced by Mr. Ellis's permission, from the one in his *Early English Pronunciation*, Part I.



[1] An account of the system, as applied to English, appeared in a smaller work: *Visible Speech for the Million* (London, 1868), which is also out of print. All Bell's works, including these two, may be obtained from Mr. J. P. Burbank, bookseller, Salem, Mass., U.S.A.

For the sake of convenience, I shall in my exposition employ the new letters whenever they agree with Bell's. For many of the symbols peculiar to Bell I have been able by Dr. Murray's kindness to make use of his set of types. Where these failed I have been obliged to refer to the table.

Symbols marked * are those which have been modified or discarded in the revised alphabet.

General Principles.

All the consonants and vowel-letters are formed by the combination of the following elements, some of which are also used as independent letters. They are all, as far as possible, pictorial of the actions or positions of the organs.

O. Open glottis, or *breath*. A segment of this, c, is the foundation of *primary* (my *open*) *consonants*, the same indented, ɛ, of *divided* consonants.

o. "Contracted superglottal passage," or *whisper*.

I. "Glottis contracted to a narrow chink," or *voice*. Foundation of all vowels, such as ɾ (i). Incorporated in voiced consonants, as in ɕ (ʒ).

ɔ. *Nasality*; pictorial of the pendulous soft-palate.

Dot. *Narrowness*-definer, as in ɾ (i).

Hook. *Wideness*-definer, as in ɾ (*i*).

Cross-stroke. *Rounding*, as in ɟ (y).

Upright-stroke. *Stopping*, as in ɑ (k).

There are other elementary signs which are employed only as modifiers.

The *place* where each sound is formed is shown by the *direction* in which the symbol is turned. Thus ɑ = (k), ɒ = (p), ʊ = (t).

The following is the complete alphabet of types.

16 *Consonants.*

O	o	c	ɑ	ɛ	*ɛ	ɑ	*ɑ
x	θ	ɕ	ɑ	ɛ	*ɛ	ɑ	*ɑ

20 *Vowels.*

ɾ	ɪ	ɾ	ɾ	ɾ	ɾ	ɪ	ɾ	ɾ	ɾ
ɨ	ɨ	ɟ	ɟ	ɟ	ɨ	ɨ	ɟ	ɟ	ɟ

7 *Glides.*

ɪ	ɨ	*ɔm	*ɾ	*ɟ	*ɾ	*ɟ

14 *Modifiers.*

ɔ	*ɔe	ɔ	*ɔ	ʌ	ʜ	ɸ	c	*>	*ɔg	›	·	o	ˌ

4 *Tones.*

-	ˌ	ˋ	˥

The types are reversible, and the consonant ones, being square, can be turned in any direction, so that, for instance, C, Ɔ, O, ᴐ are all printed from one type. The complete alphabet of 129 single letters is, therefore, printed from the above 61 types.

Certain typographical modifications proposed by Mr. Bell himself, and adopted in our revised alphabet, will be described hereafter.

We can now proceed to the detailed descriptions of the separate symbols.

Rudimentary Symbols (*V. S.* 46–49).

These are defined by Bell as "those which represent the elements of interjectional or inarticulate utterance."

1. O. When the glottis and the super-glottal passage are perfectly open, the breath creates no sound in its emission. A moderate degree of expulsiveness to render the "aspiration" audible is implied. [Bell uses this letter

throughout as the symbol of the various (h)-sounds in language, not knowing that they are (apparently) always accompanied by glottal narrrowing (*Hb.* § 195). He was, on the other hand, aware of the glide-nature (*Hb.* § 197, note *d*) of (h),[1] and it would have been more consistent to denote it by > (No. 12), as was afterwards done by Mr. Nicol and myself.]

2. ɪ. When the glottis is contracted to a narrow chink, the breath in passing sets the edges of the orifice—the "vocal ligaments"—in vibration, and creates sonorous "voice." [The description is not absolutely correct: see *Hb.* § 11.]

3. ◊. When the glottis is open, and the super-glottal passage is contracted, the breath creates in the latter the non-sonorous rustling or friction which is called "whisper." [This is a description, not of ordinary whisper, but of the wheeze (ɹ) (*Hb.* § 20). Bell was not aware that the former is produced by simple narrowing of the *lower* glottis.]

4. ◊. Compound of ◊ and ɪ, and denotes whisper and voice heard simultaneously. [Here, of course, the ◊ can only denote superglottal action.]

5. x. Glottal "catch."

6. ɾ. Nasality.

7. *9e. Compound of ɾ and ◊, and denotes guttural contraction with nasality, as heard in the French sounds *in, on,* etc. In these elements there is a gliding semi-consonant effect in the throat as well as nasal modification. [See *Hb.* p. 211, note to § 22. French nasality seems to be only a stronger development of the preceding one, due to further lowering of the uvula.]

8. ɾ. Trill.

9, 10. ʌ, ∨ by themselves, refer to the aperture of the mouth as affected by the close (ʌ) or open (∨) position of the jaws. Following other symbols, ʌ denotes configurative compression, with consequent percussion on leaving the configuration; and ∨ denotes configurative openness or organic laxity. Thus:

[1] Written (ʜ) in the *Hb.*

◊ʌ. An exhaustive aspiration from upward pressure of the diaphragm;—a wheeze. [Hardly correct: a wheeze seems to require super-glottal contraction.]

◊∨. A gentle inaudible aspiration.

xʌ. Glottal closure with distention of the larynx from pressure on the confined breath, and percussive emission on opening the passage;—a cough.

11, 12. <, >. Whisper or voice may be produced by air going inwards (<) or by breath coming out (>). All symbols except < and · imply emission. Symbol > is used to denote a transitional emission from the symbolized configuration in passing from one position to another. The effect is different from the throat-aspiration, O. Thus from the shut position of the glottis (x) we may either open sharply upon an utterance of voice (xɪ) or we may *ease off the pressure* of the "catch" by interpolating a "breath-glide" (x>ɪ). [This makes > practically identical with my (h), both before and after vowels (*Hb.* § 195-9) and in aspirated stops (*Hb.* § 222).]

13. *·. Signifies that the organic separation or recoil from any symbolized position—which is always implied in final elements when the "stop" is not written—does not take place. Thus x· is an unfinished "catch," in forming which, the impulse ceases with the *closure* of the glottis. The effect of organic "stop" is implied between elements in verbal combinations, such as *tl* in *outlaw*, *td* in *outdo*, etc.; where, necessarily, the *t* is not followed by organic recoil, as it would be at the end of a word. In these cases, of course, the "stop" does not require to be written. [These two cases are distinct. The latter is simply one of absence of glide (*breath*-glide in the two words cited). The former means cessation of out-breathing before the recoil, not *absence* of recoil. A stop maintained indefinitely without recoil would cause suffocation.]

14. *›. In verbal combinations of elementary sounds, each element is inseparably joined to the succeeding one. When any element, except the last in a combination, is finished independently of what follows, the sign of "hiatus" (›) is

used. The effect of › will be understood by pronouncing the word "bedtime," in which the *d* and *t* are not disjoined, in contrast with the separate pronunciation of the two words "*bed, time.*" Symbol > is an *aspirated* hiatus; symbol › is non-aspirated—a mere *interval.* [This symbol is practically a breath-glide (*Hb.* § 215), and is superseded when we have proper signs for the various glides. For glideless combinations see *Hb.* § 239.]

15. *ʻ. Denotes a very "abrupt" utterance, shorter than ordinary "short quantity." The latter is implied in all symbols where no sign of quantity is written.

16. ɫ. Sign of long quantity, or 'holder.' Extra prolongation may be denoted by ɫɫ.

17. *ˡ. The sign of "accent" or *stress* distinguishes the syllable in a word, or the element in a combination, which receives the principal impulse. The mark is placed *before* the accented syllable. [No sign provided for secondary stress.] This sign inverted is used to mark *emphasis* or sentence-stress. [This is superfluous, as the distinction between stress and emphasis is only logical, not phonetic.]

Consonants (51–69).

The separate symbols are c (primary), ε (divided), ɑ (shut), Ꞡ [=ɑʃ] (nasal), together with the corresponding voiced ϵ, ε, ɑ, Ꞡ. The place of the sound is indicated by the direction of the curve, thus: c back (x), ∩ front (ç), ∪ point (r), ɔ lip (ϕ). Curves of different direction are united in one symbol to show simultaneous action, as in ɔ (ʍ) = ɔ+c, ɑ (x*v*)=c+ɔ, the large curve showing the preponderating element. Voiced consonants are distinguished by the insertion of the voice-symbol: ⍵ (j), ɑ (g).

Other positions are expressed by the modifiers *ʅ (inner), *ʅ (outer), ᶜ (inverted), ᵓ (protruded): ʊʅ (t,), ʊʅ (tʻ), ʊᶜ (t+), ʊᵓ (t†).

Other modifiers are: ʌ (closeness) and ᴠ (openness), as in ɔʌ (blowing to cool) and ɔᴠ (expressive of faintness, or want of air); ʃ (nasality), as in ⍵ʃ (j*n*); ʃ (trill), as in ωʃ (r*r*).

The following are applied to stops:

*0*g*. Emission stopper (62).[1] Organic separation without emission. The "stop" (·) shows that the action is conjunctive only; and the "emission-stopper" signifies that the organs are separated after contact, but that the breath is retained [There is no reason why this modifier should not be applied to other sounds as well as stops. In fact, Bell himself says, after treating of Consonant Suctions, under the head *Consonant Actions without Breath* (62): "All the consonant configurations of every kind—primary and divided as well as shut—may be formed without either emission or suction. If the breath within the mouth be compressed behind the articulating organs while an inner closure is held, a distinct, and in some cases, a powerfully percussive effect will be produced on the abrupt separation of the organs. The signs 0*g* and 0*h* represent the two modes of this mere motion of the organs of speech." Bell apparently means to include both the action just described (0*g*) and the clicks (0*h*) under the designation "mere motion of the organs of speech."]

*0*h*. Suction Stopper (62). Suction and organic separation without inhalation. The formation of the shut consonants by suction (<) gives rise to a peculiar class of elements. The lip-shut symbol followed by the sign of suction (ɒ<) represents a sound interjectionally expressive of sudden pain; but there may be suction during the organic contact and separation of the organs without ingoing air. For this effect the special sign "suction stopper" is provided. The lip-, point-, and front-shut actions performed in this way, and the point-shut with side termination (ʊʜ), produce a series of sounds or "clicks" which are very common in interjectional or inarticulate utterance, and which are elements of ordinary speech in some African languages. Compare also note on the Zulu clicks (125). [This method of symbolizing the clicks is very ingenious. The air is sucked from between the tongue and palate from behind, so that its movement is necessarily inwards, which is expressed by the <, the (·) showing that this inward movement is not obtained by ordinary inhalation.]

[1] Note that the last line of p. 59 should be transferred to the top of p. 62.

ʜ Side opener (61). Lateral or "divided" termination instead of organic recoil.

ᵘ Unilateral. Opening of a single lateral passage. [This modification can be applied also to unstopped consonants and vowels. *Hb.* § 134.]

Bell remarks (61): "When a shut consonant precedes a nasal one of the same organic formation, the oral organs are not disjoined, but the nasal valve is simply opened, as in *pm* (ɒʃϴ) in *chapman*, etc. The independent completion of the shut consonant in such cases would be inconsistent with the law of coalescence, which requires all the elements of a word to be joined together without *hiatus*." He then proceeds to symbolize the "nasal termination of a final shut consonant by ɒɪ: it would be more consistent with the foregoing to write ɒϴ, as also ɒω, ɒωᵘ instead of his ɒʜ and ɒᵘ. There is no reason why these combinations should be only final.

A few of the consonant-symbols require special discussion.

O, ɵ and ɸ have been noticed above (pp. 13, 14).

xʃ (60). There can be no inner variety of the catch, but an outer formation, or closure of the superglottal passage, yields a distinct percussion, which is very common in Chinese and many other languages. The closure is effected by depression of the epiglottis, as in the act of swallowing. [I never succeeded in acquiring a definite idea of this sound.]

*ϛ (s). Front-mixed (52). The front and the point of the tongue both raised, so as to bring the convex surface of the tongue close to the front of the palatal arch, and the point of the tongue, at the same time, close to the upper gum.

*ϟ (ʃ). Point-mixed. The point and the front of the tongue both raised—the latter to a less degree than for ϛ—bringing the front surface of the tongue near the rim of the palatal arch. [See *Hb.* §§ 112, 114. This can only represent a voiceless palatalized ω, (rʲ), which is quite distinct from (l).]

*ϡ (þ) (58). Front-mixed-divided has its centre check at the *tip* of the tongue, and its apertures between the edges of the flattened point and the teeth or the upper gum, the front of the tongue having considerable convexity within the arch of the palate. [See *Hb.* § 110, where (þ) is described as simply

breath directed on to the teeth by (the flattened, or even concave) tongue. The convexity of the tongue described by Bell would convert the English (ϑ) into the Danish (ϑʲ), *Hb.* § 128. Lastly, division could only produce some variety of (l). If we take the symbol literally as ϖ+ω, it can only mean a voiceless Italian *gl* modified by (r). ω, the point-divided, is described by Bell as "(having) its apertures over the sides of the middle of the tongue, the point being in contact with the upper gum; the front surface of the tongue is flattened or slightly concave, so that the apertures are large and productive of but little friction or sibilation."]

*ƨ (59). Point-mixed-divided has the apertures of ω (l) narrowed by convexity of the tongue, and the breath is in consequence strongly sibilant. [This is, according to Bell (93), the Welsh *ll*, usually identified with ωᵘ, and the Zulu *hl*. The voiced sound he identifies as the Zulu *dhl*. It is not clear in what way the sound is supposed to differ from the preceding one. The Welsh *ll* certainly has a strong sibilant effect, but this can be effected by spreading out the lateral edges of the tongue, as well as by convexity of its front, and I conjecture that the Zulu *dhl* is simply such a (buzzed) ω. Taken literally ƨ ought to represent (lʲ)—the ordinary French *l* in *belle* (*Hb.* § 132).]

ɜ (f). Lip-divided is formed by placing the centre of the lower lip on the edges of the upper teeth, while the breath hisses through the interstices between the teeth or between the teeth and the lip. A similar effect of divided formation results from placing the lower on the upper lip, instead of the teeth, and directing the breath over the corners of the lips. This peculiarity would be represented by the modifier (ɔ) "to lip" after the lip-divided symbol ɜ. [*Hb.* 118, 133, and note, p. 213. Bell's own analysis contradicts his symbolization of (f) as a divided: the true divided is the sound he writes ɜɔ.]

These errors of symbolization are evidently due to the attempt to uphold the symmetry of the system, even where the ground-plan is defective. It certainly is a defect that there is no sign for the teeth-position, which would enable

(þ) and (f) to fall into their natural places 'point-teeth' and 'lip-teeth' respectively. (s) and (ʃ) are more difficult to deal with. It may be noted that Bell's providing a sign (1*k*) for the very rare (ŧ*v*), while leaving the frequently occurring (s*j*), (ʃ*j*), (ʃ*v*), (j*v*), unsymbolized, is also due to the exigencies of symmetry, which allows only *opposite* curves to be united in one symbol, and hence excludes ɔ+ɔ, ɑ +ɔ, etc. The way in which the revised alphabet meets these difficulties will be seen hereafter.

The following is Bell's "General Scheme of Consonants" (66).

Voiceless.

Throat	*O	◊	–	–	x	–
Back	c	ɑ	ɛ	*ℰ	ɑ	*ℭ
Front	ɔ	*ɑ	ɔ	*ℑ	ɑ	*Ω
Point	ʊ	*ʊ	ω	*3*d*	ɑ	*3*f*
Lip	ɔ	ɔ	*3	*4*d*	ɒ	*Ɔ

Voiced.

Throat	–	◊	–	–	–	–
Back	ɛ	ɛ	ɛ	*ℰ	ɑ	*ℭ
Front	ɷ	*ɑ	ɷ	*2*k*	ɑ	*Ω
Point	ɷ	*ʊ	ɷ	*3*k*	ɷ	*Ɔ
Lip	ɜ	ɜ	*3	*4*k*	ɒ	*4*m*

In Bell's nomenclature the *place* is named first and *voice* last: ɒ lip-shut-voice. Consonants of two curves he calls 'mixed,' thus ɔ is 'lip-mixed,' ɑ 'back-mixed.' It seems simpler to name both organs: lip-back, back-lip. Bell calls ɑ, etc., 'shut' consonants, instead of the more usual 'stop.' I have also substituted 'open' for his 'primary.'

Glides (69–70).

Bell's symbolization of the non-syllabic vowels with which diphthongs are formed is the one general feature of his alphabet which has met with least approval among phoneticians.

"The primary consonants are formed by the breath or voice issuing with a degree of friction, sibilation or buzzing, through a narrow passage over the back, front, etc., of the tongue, or between the lips. When the configurative channel is so far expanded as to remove compression or buzzing from the voice, a series of semi-consonant, semi-vowel sounds results, which we call 'glides.' These elements are only *transitional* sounds. If they had a fixed configuration, they would be vowels, and would form *syllables*; as even the closer consonants do when their configuration is held.

"The glides being thus intermediate to consonants and vowels, are appropriately represented by the organic consonant curves joined subordinately to vowel-stems; thus ɲ [from ɔ]. The glides unite with vowels to form diphthongs, or double sounds with a single syllabic impulse. The vowel-signs (ɪ, ɤ) are now specifically employed by themselves to denote *non-syllabic* vowel murmurs."

He thus describes a vowel (71):

"A vowel is a syllabic sound moulded by a definite and momentarily *fixed*, or tense, configuration of the free channel of the mouth, and creating no oral sibilation or friction in its emission. A vowel without a fixed configuration loses its syllabic effect and becomes a glide; and a glide with sibilation or friction in the oral channel becomes a consonant. Consonants, like glides, are merely transitional sounds;

but their configurations may be held so as to receive syllabic impulse, in which case a consonant without a vowel has the effect of a syllable. All vowels make syllables."

This view of 'glides' being intermediate to consonants and vowels is the result of confusion between two distinct divisions of sounds, namely, that of syllabic and non-syllabic, and that of consonant and vowel. The latter is entirely the result of the *position* of the organs, while the former is purely relative, dependent mainly on stress, secondarily on quantity (*Hb.* § 189, 250). Any sound, whether consonant or vowel, may be either *syllabic*, that is, a syllable-former, or the contrary. *Any consonant whatever*, not merely (l), (n), etc., may constitute a syllable, and any vowel may be made non-syllabic without the slightest modification of the position with which it is formed. Bell's intermediate symbols would be defensible only if glides were formed with a degree of friction or closeness intermediate to that of consonants and vowels, which is not the case. It is also clear that there must be as many glide- as there are vowel-symbols, but Bell provides only eight glides to represent the thirty-six vowels. Thus, the six vowels ɾ, ɾ, ɾ, ɾ, ɾ are all represented by the single glide ɾ. Some vowels, such as ɪ, have not even an approximate glide to correspond.

The remaining glide-symbols are really weakened consonants, such as 5*d*, which is a weak ɷ (r).

The following is a complete list of the glide-symbols. Bell's key-words are given by him on p. 94 of his book.

*>. Breath-glide. A transitional aspiration of organic quality corresponding to that of the adjoining element. =a soft effect of c, o, etc. [See p. 192, above. Bell's key-word is the Irish *p'aper*.]

ɪ. Voice-glide. Vocal murmur,=a non-syllabic effect of ɭ. [Non-syllabic ɭ (ë) implies a definite position—the mid-mixed-narrow, but it is also possible to make a voice-murmur in passing from one position to another, of so transient a character that it cannot be said to have any definite configuration. ɪ ought to be used to denote this sound only. Key-word, the English *va'ry*.]

ɪ. Round-glide. Rounded murmur,=a non-syllabic effect of ɬ (ö). [Compare the remarks on ɪ. Key-word, American and Cockney *now*. This is rather the ordinary English pronunciation.]

*5*m* Throat-glide. A semi-vowelized sound of ɸ (ɹ), resembling the vowel ɻ (*v*). [This comparison is misleading, as there is no throat action in ɻ. The key-word given is a 'peculiar' pronunciation of *are*. Bell told me that my own pronunciation of the vowel *r* in *hear*, etc., was this throat-glide, but I believe it is simply a glide-ɪ (*ä*).]

*ɾ Back-glide. A semi-vowelized sound of ɛ (ʒ), resembling the vowel ɧ (ʊ) or ɭ (ɯ). [Key-word, *are*=smooth burr.]

*ɾ Back-round-glide. A semi-vowelized sound of ɛ (ʒ*w*), resembling the vowel ɬ (o). [Key-word, *our*=smooth burr labialized.]

*ɾ Front-glide. A semi-vowelized sound of ɷ (j), resembling the vowel ɾ (i). [Key-words English *die*, *day*. The sound here is, of course, a glide-ɾ, not ɾ.]

*ɾ Front-round-glide. A semi-vowelized sound of ɷ with lip-modification, resembling the vowel ɬ (y). [Key-word, North Irish *new*.]

*5*d* Point-glide. A semi-vowelized sound of ɷ (r), resembling the vowel ɪ (ä). [Key-word English, *are*. This seems to be a compromise between Bell's half-Scotch, half-elocutionary pronunciation of the English vowel-*r* as ɷv (without trill), and the ordinary glide-ɪ or ɪ pronunciation.]

*ɬ Point-round-glide. A semi-vowelized sound of ɷ, with lip-modification, resembling the vowel ɪ (ö). [Key-word, English *our*.]

*5*e* Lip-glide. A semi-vowelized sound of ɔ (β), resembling the vowel ɬ (ü). [Key-word, French *lui*.]

*ɧ Lip-round-glide. A semi-vowelized sound of ɔ (w), resembling the vowel ɬ (u). [The combination of 'lip' and 'round' is, strictly speaking, a tautology; by 'rounding' all here implies *inner* rounding (*Hb.* § 37, 9). Key-word, English *now*, which seems to be generally pronounced with glide-ɧ or ɪ, Bell's ɪ.]

In Bell's nomenclature *glide* comes last: 5*l*, lip-round-glide.

Vowels (71–80).

Bell's definition of a vowel has been quoted already (p. 197).

Primary [my *narrow*] vowels are those which are most allied to consonants, the voice-channel being expanded only so far as to remove all fricative quality. The same organic adjustments form *wide* vowels when the resonance-cavity is enlarged behind the configurative aperture—the physical cause of wide quality being retraction of the soft palate, and expansion of the pharynx. [See *Hb.* §§ 24, 25, where the distinction of narrow and wide is shown to depend on the shape of the *tongue*, and to apply to consonants also. The narrowing of *back* sounds appears, however, to be due to tension and consequent advancing of the uvula, often with a simultaneous sympathetic retraction of the tongue. The flexible soft palate has, therefore, the same function in the back of the mouth as the flexible front of the tongue has in the front of the mouth.]

The vowels are divided into three classes of palato-lingual formations, according as the oral cavity is moulded mainly by the *back*, the *front*, or the *mixed* (back and front) attitudes of the tongue.

The symbol of voice (ɪ) is the basis or 'stem' of all the vowel letters. To this stem a *primary* or *wide* definer (p. 188, above) is joined, to the *inner* side for back, to the *outer* for front, and to *both sides* for mixed vowels.

Three degrees of elevation of the tongue in its back, front, or mixed attitudes are discriminated by the position of the definers on the vowel-stem. Thus:

	Primary.			**Wide.**		
	back	*mixed*	*front*	*back*	*mixed*	*front*
high.	ɭ ɯ	ɪ̈ ï	ɾ i.	ɭ *ɯ*	ɪ̈ *ï*	ɾ *i*
mid.	ɟ ɤ	ɭ̈ ë	ɾ e.	ɟ a	ɭ̈ *ë*	ɾ *e*
low.	ɟ *ɒ*	ɪ̈ ä	ɭ æ	ɟ *a*	ɪ̈ *ä*	ɭ *æ*

(These) lingual positions yield another series of vowels when the voice-channel is 'rounded' and the apertures of the lips contracted. The mechanical cause of round quality commences in the super-glottal passage, and extends through the whole mouth-tube, by lateral compression of the buccal cavities and reduction of the labial aperture. The last-

lip-modification—being the visible cause of round quality, is assumed as representative of the effect. The amount of lip-modification corresponds to the degree of elevation of the tongue: high vowels have the narrowest, low the broadest, and mid an intermediate aperture.

The lips are drawn *across the aperture* of a lingual vowel in order to round its quality; and the resulting effect is symbolized by a short line drawn *across the vowel stem.*

	Primary.			**Wide.**		
	back	*mixed*	*front*	*back*	*mixed*	*front.*
high.	ɬ u	ɬ̈ ü	ɬ y	ɬ *u*	ɬ̈ *ü*	ɬ *y*
mid.	ɟ o	ɭ̈ ö	ɭ ø	ɟ *o*	ɭ̈ *ö*	ɭ *ø*
low.	ɟ ɔ	ɪ̈ ö	ɭ œ	ɟ *ɔ*	ɪ̈ *ö*	ɭ *œ*

The effects of rounding, not being dependent on the lips alone, is producible—with some peculiarity—without contraction of the labial aperture. The sign of 'inner' formation may be used to denote this mode of pronunciation. Thus ɬ̈ = *oo* rounded without the lips.

Other faintly different shades of vowel-sound are possible; as, for instance, from giving a greater or less than the ordinary or *symmetrical* degree of lip-modification. Even these delicate varieties may be perfectly expressed by the modifiers 'close' (ʌ), 'open' (ʋ), 'inner' (ɻ), 'outer' (ɻ), or by 'linked' symbols.

In naming the vowels height comes first, rounding last: e.g. mid-mixed-wide-round.

Linked Symbols (80).

Peculiar oral combinations may be indicated at pleasure by writing two organic symbols with a 'link' (ₒ) between them, to show that they are to be pronounced simultaneously, or in succession. Thus, ɯₒɔ, labialized *r*, ɯₒc gutturalized *r*, etc. Any two elements may be thus linked, where a single symbol does not express the whole mechanism of a peculiar sound. Thus the low-back vowel linked to the *r*-consonant (ɟₒɔ) would show close labial modification of a sound which, when normally rounded, is associated with a wide aperture of the lips.

Governing Signs (80).

A pair of linked symbols within parenthesis may be used as governing signs to denote *habitual* peculiarities of any kind, and thus save the writing of the latter at every instance of their occurrence. Thus the nasal sign or back consonant linked to any element will show a general nasalizing or gutturalizing of that particular sound, as (ω◦ı:) *l* nasal, (ω◦c:) *l* guttural.

A more general indication of such peculiarities, without reference to any specific element, will be furnished by writing the link before the nasal, etc., sign by itself, within parenthesis, as (◦ɔʌ:) close lips, (◦ı:) general nasal quality.

Tones (82).

- Level tone.
ˊ Simple rising inflexion.
ˋ Simple fall.
ˇ Compound rise—falling and rising with a single impulse of voice.
ˆ Compound fall—rising and falling with a single impulse of voice.

In the notation of tones no more is aimed at than the discrimination of the radical varieties. The types for tones being, however, reversible, may be used to indicate relative *pitch* as well as inflexion. Thus:

ɟ′ high-pitched rise.
ɟ, low-pitched rise.

Modulation, or change of key, is symbolized by
ꜙ Key elevated.
ꜜ Key depressed.

Other signs.

◦. (88). Whistle.

(82). Other alphabetic forms may be introduced to show the combinations c◦ɔ, c◦ʊ, etc., with excess of either element. The sign of trill, inner or outer formation, etc., may be similarly combined, by superposition, or otherwise, with the letter to which they refer.

Revised Organic Alphabet.

General Principles.

In the above exposition I have abstained as far as possible from criticism, only pointing out the more obvious errors of Bell's analysis for the reader's guidance. It will now be necessary to carry out our criticism in detail, in order to justify the alterations proposed. These alterations are of two kinds, 1) those which deal with the *shapes* of the letters, 2) those which are the result of difference of *analysis*.

Before entering on the details of the former class of alterations, it will be as well to make a few remarks on the principles of sound-symbolization from a purely graphic point of view. It is evident that the two main requisites are *distinctiveness* and *simplicity*, which are, to a certain extent, opposed to one another, this opposition becoming more and more marked as the number of letters increases. The co-existence of such letters as I l i in the Roman alphabet, and, to a less extent, of o c e, is a sin against distinctiveness, while such letters as g, Sanskrit ओ=*o*, or almost any one of the German capitals, are equally objectionable from the second point of view. The complexity of the Roman alphabet is enormously increased by its often having perfectly distinct forms for the same letter according as it is lower case, capital or italic—a A *a*, g G *g*. It is evident that no forms can be more distinctive and, at the same time, simpler than those on which Visible Speech is mainly based—| O. The distinctiveness of Visible Speech is, however, limited by its principle of indicating the relations of the sounds by a corresponding resemblance between their symbols, so that, of course, the more closely allied two sounds are, the slighter will be the difference between their symbols. It has, for instance, been urged as an objection to Visible Speech that the distinction between narrow and wide is too minute. I do not believe that it is, but if it were—if the distinction between ſ and ſ were one which might easily escape a cursory reader—it is of little importance, the distinction not being meant for cursory readers, and the objectors for-

getting that in ordinary Roman spelling, as in the English words *pick* and *pique*, the difference between narrow and wide is left absolutely unmarked.

The Roman alphabet has reached its present high standard of simplicity and clearness by a gradual process of wearing down and elimination extending over thousands of years, and it is interesting to observe that Visible Speech, although an independent and a-priorily constructed system, has many letters which are, as regards the elements they are composed of, identical with Roman ones. Thus the following Roman letters re-appear almost or quite unchanged in Visible Speech: o c f *f* ɹ ı l *x*, while others contain the same elements: j e ᴅ u.

An objection which generally suggests itself to those unacquainted with Visible Speech is that the repetition of the same symbol turned different ways is confusing. To this it may be answered that exactly the same thing occurs in Roman, where b, d, p, q are distinguished solely by the direction of one and the same combination, which only requires to have its stem shortened to become the Visible Speech symbol of a stopped consonant.

If experience shows that any of the letters are not distinctive enough, it will be easy to add marks or make slight modifications, as long as they do not obscure the groundwork of the symbol. This is in fact already done in such pairs as ω ω, where the divided consonant is beaded, to distinguish it still further from the open one.

We will now proceed to details, beginning with the purely formal alterations.

The most important and general one consists in a return to Bell's original plan of casting the consonants on oblong instead of square bodies, which requires twelve additional types, and making the vowels ascend and descend above and below the line, high vowels ascending, low descending, and mid both ascending and descending, which makes the vowel-symbols more distinctive, and, at the same time, informs the eye of the number of syllables in a letter-group. This naturally suggests a further reform, namely, to abolish Bell's vowel-glides, and make non-syllabic vowels of the same

height as the consonants, thus: ɑɪɾ (kui), ɭɾ (*ai*), ɻɤ (æu). ɪ and ɤ are retained.

Glide consonants are indicated by a following), thus ω) is a glide (l), and ɯ) is exactly equivalent to ɾ. Glideless combination is indicated by ‿, thus ɑ‿ω is (kl) without any glide between the (k) and (l).

In the consonants it has been found impossible to work with Bell's nasals, on account of the difficulty of distinguishing them from the corresponding stops, especially on a small scale. The difficulty lies in combining the three elements ᑫ in compact and distinctive symbols, allowing also for the addition of the voice-stroke. After many trials the simple remedy suggested itself of omitting the c altogether, combining the ı and ſ, and indicating the place of the nasal by the direction of the ı, thus: ɹ (ɳ), ɾ (g), ɔ (n), ɾ (m), the voice-stroke being added thus: ɹ, ɾ, ɔ, ɾ. These forms are less elegant than the original ones, but are as simple, distinctive and self-interpreting as is possible.

We now turn to those modifications and additions which have been made necessary by divergent analysis and increased knowledge.

In the consonants a special symbol for 'teeth' has been adopted, namely ∪, the angle being pictorial of the edges of the teeth. The other organs concerned in the production of a teeth consonant are indicated by the direction in which the symbol is turned: ∪ point-teeth (þ), ⊃ lip-teeth (f). To indicate the 'blade' position (*Hb.* §§ 7, 112) the form s has been adopted from Bell's script, being regarded as a special combination of ɔ and ∪, implying an intermediate position. s being taken as blade, is reversed to symbolize blade-point: s (s), ʒ (z), ƨ (ʃ), ƨ (ʒ). Those who disagree with Bell's analysis must regard s as a purely conventional and arbitrary sign, taken direct from the Roman alphabet, and ƨ as an arbitrary modification of it.

The only one of Bell's 'mixed' consonants that has been retained is ɔ (and ɑ). The others have been superseded by the introduction of uniform modifiers, formed from segments of the curves for back, front, etc.: (back, \ front, ∖ point,

ɔ lip, ɒ lip-back, (ɕ back-lip), as in ɷ\ (rj), ɷ) (jv). The principle of providing modifiers for all the fundamental actions has been carried out consistently, the following being the remaining consonant-modifiers: ʃ blade, ı stop, ıı open,) glottal stop. The first is formed from s, the last from x, while ıı is formed on the analogy of the existing ʜ (divided).) after a consonant denotes simultaneous closure of the glottis ('implosion,' *Hb.* § 224).

Bell's signs for inner and outer being liable to confusion with the nasal sign ʃ, ˂ and ˃ have been substituted, which are also turned upwards and downwards ˄ and ˅ to indicate raising and lowering, for which Bell has no sign, thus ſ˂ inner (i), ſ˄ raised (i).

Bell's symbolization of breath, whisper and voice is in some respects rather arbitrary, and requires extension. This has been effected by various modifications of the o. o itself has been taken to signify breath without any oral modification, the breath-glide being symbolized by a smaller circle, thus ɑ°= Danish (kh). When the breath-glide is simply a gliding devocalization of a following vowel, the same smaller circle is placed on a glide-vowel stem, thus ꝏ]=ordinary (ha) (*Hb.* § 195 foll., § 210 foll.) ∘ is a *stress*-glide (or aspiration), and to denote the ordinary stressless glide in English *ka*, etc., which only requires to be written in very minute notation, a still smaller circle is used, as in ɑ°] (*Hb.* § 212, 1). The corresponding stressless voice-glide is symbolized by ', a shortened voice-symbol, as in ɑ'] (*Hb.* § 212, 2), ɑ']. These last two doubled, ː ', are employed as modifiers, thus ſː voiceless (i). From ɵ is formed the whisper-glide ◦ on the analogy of °, and the modifier ɒ, thus ſɒ=whispered (i).

The signs for in- and out-going breath, ˂ and ˃, have been retained, but only as modifiers, Bell's breath-glide being expressed by °. Instead of Bell's dot it has been thought simpler to extend the ı to breath-stoppage also: ˃ emission-stopper, ˂ inhalation-stopper ('click').

The signs for closeness and openness, ʌ and v, have also been retained, but only in their strict applications. From them, the marks of syllabic stress have been formed, ˄ and ˅,

the latter signifying weak stress, the former strong. ˄ is, for convenience, shortened into a simple point, as employed by Mr. Ellis, (·) being used for strong, (··) for extra strong, (˛) for half stress. To indicate non-syllabic force on an isolated element, these signs are lowered, ɑ.], the (.) being employed in order to prevent confusion with the ordinary full stop. Lastly from ˄ and ˅ are formed the modifiers ˆ and ˇ to symbolize narrowness and wideness respectively, ɜ˄, for instance, being narrow (w).

The holder ꜝ is shortened (ꜞ) to denote half-length, and this latter inverted (ꜟ) is the sign of shortness, instead of Bell's arbitrary (˘).

‿ between two symbols denotes absence of glide, and) shows that the preceding symbol is a glide. At first the plan of inclosing the symbol in () was tried, but this was found cumbrous, and only the second half was retained.

As Bell's link is appropriated for breath, the sign + has been introduced to denote simultaneousness. * is used as a general modifier to indicate that the preceding symbol is not to be read literally, but with some implied modification.

The following are the main principles that have been followed in the above alterations and extensions: 1) to avoid isolated symbols, as in the abandonment of Bell's breath-glide and mark of shortness; 2) to provide separate modifying-symbols for all the organic actions; 3) to make the modifiers thinner than the corresponding full symbols; 4) glides, etc., being made into modifiers by doubling.

Other symbols (especially those whose adoption requires further consideration) will be described hereafter.

In the present imperfect state of our knowledge of intonation, Bell's symbols will suffice for general purposes.

Detailed List of Symbols.

General Symbols.

Modifiers naturally *follow* the letter they refer to. An exception may often be made in the case of *tones*, which generally apply to groups of sounds, not merely to single

ones. See the specimens in my *Spoken Swedish*. When several are applied to one letter, that one which is associated most intimately with it comes first. Thus the symbols of quantity and stress come after the more special ones of rounding, closeness, elevation, etc., as in ɷ)ɫ, ωɾ·, ωɾʍ·, stress-marks following those of quantity. When modifiers are applied to *groups* of sounds, such as a sentence or paragraph, they must be written before them, either in the way indicated above, p. 202, or else simply by prefixing the symbol, which must then be separated a little from the first letter of the group it modifies. Thus the sentence *come up!* might be written ɾ ɑ]ꜰ]ɒ, ɫ ɑ]ꜰ]ɒ, according as it is uttered with nasality, slowly, quickly, energetically, etc. If the prefixed modifier is meant to apply only to a *portion* of the group, the point where its application ceases can be marked by repeating it with the stop-symbol after it, thus ɾı would indicate cessation of nasality.

* *general modifier*. See p. 207. Used wherever a special modifier is not provided or is inconvenient, or else to indicate doubtful or imperfectly analysed modifications. Thus ʋ*= any variety of English (þ), such as the Danish ʋ\, ɹ* (*d*) with some peculiar form of nasality. Retained in Romic.

+ *link* denotes simultaneity. Thus ω+ɷ palatalized (r). Not much required in the revised alphabet, which provides special modifiers, the above sound, for instance, being written ω\. The final consonant in English *open* (*Hb.* p. 213) is ꜰ+ɹ which with the modifiers would be written ʒɘ)ɒʊɹ). Retained in Romic.

ɫ ɫ ɫ *quantity*. ɫ=full, ɫ half length, and ɫ ordinary shortness, usually left unmarked. Extra length or drawl is indicated by ɫɫ, extra shortness or abruptness by ɫɫ, intermediate quantities by ɫɫ between full and half, ɫɫ between half and short, etc. In Romic ɪ may be used, but as this is liable to confusion with *i*, a simple stroke is better, which may be cut in two, and inverted, just like ɫ: it may be regarded as the stroke of *ā*, etc., written separate.[1]

[1] In this paper I have temporarily used the Organic stop-symbol ı.

· ˑ ˌ ˏ *force*. Only a few of these are required in ordinary writing: (·) strong stress, (:) half-strong or medium, and (··) extra-strong. Intermediate degrees can be indicated by (·:) between strong and medium, (:ˇ) between medium and weak, etc. Very weak (evanescent) would be indicated by (ˇˇ), (ˇ), weak being hardly ever required. All these denote *syllabic* stress, the mark being placed immediately after that member of the syllable on which the stress begins, as in ɪɔ·[ɪꜰ 'a name,' ɪɔ[·ɪꜰ 'an aim' (*Hb.* § 257). Of the corresponding marks of absolute, or non-syllabic force, (ˬ), weak, is hardly ever required, and (ˏ) not very often. The latter might be employed in monosyllables, and also in polysyllables, to show that one member of a syllable is uttered with exceptional force, but without altering the general force of the whole syllable as compared with that of the other syllables in the group. In Romic (.) must be used for (ˏ), the negative degrees (ˬ ˬ) being left unmarked.

‿]) *glides* (retained in Romic). ‿, denoting glideless combination, is required in such words as the E. ɪɑ‿ʊ (act), as distinguished from the normal ɪɑʊ=ɪɑ·ʊ, which is the French pronunciation. In such combinations as ɔʊ (nd), ωʊ (ld), the glidelessness is implied in the juxtaposition of the elements. In the vowels it has been found necessary to distinguish syllabic (such as ɪ) from non-syllabic or glide-vowels (such as ɪ). The term 'glide,' as applied to the second element of such a diphthong as]ɪ (ai), is not absolutely correct, for the ɪ can be lengthened indefinitely, if only the continuity of stress is observed (Hb. § 201), and it is not till we begin a new stress on the second element that monosyllabic]ɪ becomes dissyllabic]ɪ. The rigorously correct definition of ɪ is, therefore, *non-syllabic* vowel, implying weak stress, and generally also shortness and transitional configuration, on which latter the term 'glide-vowel' is founded. A consonant is generally non-syllabic, hence ɷ˗ is practically identical with ɪ. Many of the combinations in which consonants appear as 'syllabics' do not require any special marking, as in ɑɪʊω (cattle), which can be pronounced only one way. Sometimes, however, a 'syllabic-former' is

required. For this purpose] may be used, to be regarded as a special modification of the vowel stem ɪ, a syllabic consonant being an approximation to a vowel. Thus in ꜰωɑ (milk) either of the two liquids might take the syllabic stress and become syllabic, but the actual pronunciation is ꜰω]ɑ. [I used to analyse this word as ꜰωɪωɑ (mjulk), misled by the frequent rounding of the liquid, which is often ω (lw).] Practically, however, this word is unambiguous, because ꜰω]ωɑ would naturally be written ꜰɪωɑ, or, at most, ꜰɪωɑ, if the consonantal narrowing were very marked. When it is necessary to emphasize the gliding, non-syllabic character of a consonant, the 'glide-former' or non-syllabic modifier) is used. Thus the E. *try* is strictly ʊɔ)ω]ɾ. This sign may be usefully employed to distinguish between the length of a diphthongic vowel and the length of the transition between the preceding full vowel and it. Thus]ɪ denotes actual lengthening of the second element, while]ɪ) implies that the transition or glide between the two positions is made slowly. It will be observed that these symbols do not distinguish with absolute strictness between non-syllabicness and gliding, which it is, indeed, often very difficult to do. The distinction could be made, if necessary, by retaining) in the former value, and indicating glides in the strict sense by smaller sizes of the non-syllabic vowels and of the ordinary consonants. At present it is safer to err on the side of vagueness.

› (!), ‹ (¡), ▸ (?), ◂ (¿), *breath-directors.* Of these the out-breather or expiration-sign › is hardly ever required, being implied in ordinary writing. The in-breather or inhalation-sign ‹ must, of course, be written when required. ▸ ◂ imply respectively outwards and inwards motion of the air in the mouth without out- or in-breathing. The latter is the click-sign, as in ʊ◂, the ordinary *tut!* ▸ denotes what Mr. A. G. Bell (*V. S.* p. 126) calls an 'expulsive' click. Thus ɑ▸ would imply (k)-position with shut glottis and throat-contraction, and consequent percussive escape of the squeezed air when the ɑ is relaxed. All these signs are modifiers.

Cessation of breath is indicated by the breath-glide follow-

by the stop symbol, •ı, which, if necessary, may be combined in one symbol. Thus]ɑ•ı (ak) without 'recoil.'

ʌv (ˡ ı), *close, open.* These signs must be carefully distinguished from those of force. A (j) formed with the front of the tongue as near the palate as possible, ωʌ, may be uttered with any degree of force, as also the relaxed ωv, which is practically equivalent to ɪ (i) or ɪ (*i*). Closeness and openness are, on the other hand, closely related to raising and lowering respectively, ωʌ being practically equivalent to ω˖. In the case of the back sounds they are generally more nearly related to retraction.

∶ ∶ (ˡˡ ıı), *narrow, wide.* Occasionally required for consonants. Thus ɜ∶=the consonantized ɪ or ɪ, in French *oui*, ɜ∶=E. *w*. Also occasionally required for the glides ɪ (ʌ) and ɪ (ʌw), whose narrowness is generally left undecided.

˖ ˗ (ˡ ı) *raised, lowered* ˂ ˃ (˛ ˛) *inner, outer.* [˖ raised Danish (e),]˃ advanced Danish (a). The normal positions may be emphasized by employing both signs of either pair, thus [˖˗ the normal French (e). The vertical and horizontal modifiers can be combined, thus [˖˂ (e) raised and retracted at the same time. These combinations could be effected by making the horizontal stems of ˂ and ˃ point obliquely upwards or downwards to indicate simultaneous raising or lowering.

ᴄ ɔ (ɫ†) *inversion, protrusion.* ʊᴄ inverted (cerebral) (t), ʊɔ (t) formed on the lips. With a lip-sound ɔ may be used to indicate lip-pouting, thus ɪɔ Scotch or German (u). Different degrees may be distinguished by doubling the symbols or combining them with ˂ and ˃.

(\ ( ) ɔ (*x, j, ɂ, v, w*) *back, front, point, lip, lip-back modifiers.* The last is exactly parallel to ɜ, implying inner rounding. ω(gutturalized (l), ω\ palatalized (r),]ɔ muffled (a), distinct from]=]ɔ. A special application of) is to denote abnormal degrees of vowel-rounding. Thus the Swedish (o) may be written]), implying one degree more of rounding. Further distinctions may be made by doubling the) or adding ʌ or v. Observe that) is written, not ɔ, because the inner rounding is implied in the vowel symbol itself. Defective rounding is

symbolized by adding ʚ to the symbol of the unrounded vowel, thus lʚ=l with low-rounding=Swedish short u (Spoken Swedish, p. 8). Absence of inner rounding may be emphasized by writing ɤ, and varieties of inner rounding by ɤ, ɤ, ɤ. The point-modifier is required in writing vowels into which an inverted (r) is incorporated (*Hb.* § 170), as in the Kentish *sparrow*=sɒʃɤc.

ʂ (*s*) *blade-modifier*. A (t) formed by stopping an (s) would be written ʊʂ, a position intermediate to (s) and (ʃ), would be written sʂ. In Romic it could be expressed by (ʃs).

ı ıı ʜ ʮ (*ɣ, ɦ, §§, §*), *stopped, open, divided, unilateral modifiers.* ʮ is applied to vowels as well as consonants, as in Iʮ, where it implies unilateral rounding. The other modifiers are not much required, being incorporated in the ordinary symbols. ʊʂ might also be written sı. ı is also used without ambiguity in a wider sense to denote cessation of breath, etc. (pp. 208, 210). ıı may be applied to vowels to denote the converse of rounding, ʃıı for instance=(i) with spread lips, the neutral English vowel being emphasized by writing ʃıɒ.

ʃ ʂ (*n, r*) *nasal, trill modifiers*. The strong French nasality can be distinguished as ʃʃ. According to Storm (Englische Philologie, p. 36) the nasal vowels in Polish assume before dentals a dental, before labials a labial character, as in *pęnta Dąbrowski*, which can be indicated by writing ʃɤ, ʃɒ.

o ∘ • ⵗ ː (h*h*, h, h), h, *h*) *breath-consonant, strong breath-glide*, or *aspirate, weak breath-glide, vowel breath-glide, breath-modifier*. See p. 206.

I Ɨ ' ː [ʌ, ʌ*v*, ', *a*] *voice-glide, voice-glide round, weak voice-glide, voice-modifier*. See p. 206. ː may be used to express various degrees of vocality, as in cː, єː, as opposed to the normal є or єːː.

X ɪ (; ;) *throat-stop, throat-stop modifier*. See p. 206.

o ɵ ɵ ʚ (ɪ, ɪ, ʻʻ, ʻ) *throat-open cons., throat-open voice whisper-glide, whisper-modifier*. See p. 206. ʻ is added to the voiced symbol, thus (nʻ)=ʊʚ. It does not seem possible to reproduce the distinction between ∘ and • in the voice and whisper series, on account of the obstruction of the breath, and consequent difficulty of differentiating the force of the

outgoing. The voiced whisper-glide (ɵː), if pronounced strongly enough to be distinguishable from simple ', becomes practically equivalent to the full consonantal ɵ, and hence no special symbol has been provided for it.

It will be observed that ɵ and its modifications are ambiguous, being, in fact, general signs for all throat-actions except those which produce voice. The difficulties of practical discrimination make it safest to retain Bell's comparatively vague symbols for the present.

Vowels.

l (ɯ) high-back-narrow. Armenian ls 'the.'

l (*ɯ*) high-back-wide.

] (ʋ) mid-back-narrow. E. *up*.

] (a) mid-back-narrow. E. and Italian *a*. The E. sound is nearly]ɪɪ: the evanescence of the glide-vowel may be expressed by writing]ɪ).

J (*ɒ*) low-back-narrow. Vulg. London *park*, Dutch *land*.

J (*a*) low-back-wide. Sc. *man*, Fr. *â*, Jʃ Fr. *an*.

I (i) high-mixed-narrow. Russian *y*, Welsh *u*, Sw. dialectal *i* in *Viby*, all fall under this vowel, the first two being apparently identical. The last is apparently retracted Iɤ, the *y* in *Viby* being Iɒ, with outer rounding only, distinct from Ɨ. But I cannot speak with certainty about these Swedish sounds, for which see Lundell, *Landsmålsalfabetet*.

I (*i*) high-mixed-wide.

] (ë) mid-mixed-narrow. American]ɾʋ (earth). Bell writes this American diphthong with I, but repeated hearing has convinced me that he is wrong. German, etc., unacc. *e* in *gabe* is, perhaps, sometimes], its shortness making recognition difficult.

] (*e*) mid-mixed-wide. E.]ɾ (eye).

I (ä) low-mixed-narrow. E. Iɤʋ (earth).

I (*ä*) low-mixed-wide. E. ƨIɤ (how). South German *käse*, ... seems to have this vowel (ɑ'Iɤs) rather than I.

ʃ (i) high-front-narrow. Fr. *fini*, Sc. *sick*. ʃ› Portug. *sim*.

ʃ (*i*) high-front-wide. E. >ʃɿʃ˷ (finny).

[(e) mid-front-narrow. Fr. *été*. [˖ Danish *se*.

[(*e*) mid-front-wide. E. *pen*. Fr. *père*.

ɩ (æ) low-front-narrow. Sc. *men*. ɩ› Fr. *vin*.

ɩ (*æ*) low-front-wide. E. *man*.

ɫ (u) high-back-narrow. Fr. *sou*. Sc. *book*. ɫ› Sw. *kung*. ɫ› Port. *um*.

ɫ (*u*) high-back-wide. E. *book*.

ɟ (o) mid-back-narrow. Fr. *beau*. ɟ› Sw. Dan. *sol*. ɟ˖ Norw. *sol*. (Storm, p. 70, note 1.)

ɟ (*o*) mid-back-wide. E. *owe*, *boy*. Fr. *or*. North G. *gott*. ɟ› Fr. *on*.

ɉ (ɔ) low-back-narrow. E. *law*, almost ɷɉɪ. ɉ› Norw. *så*. ɉ Dan., ɉ Sw. *så* (see p. 233).

ɉ (*ɔ*) low-back-wide. E. *not*. ɉ› Sw. *hopp* (?).

ɪ (ü) high-mixed-narrow. Norw. *hus*. ɪ› Sw. *hus*.

ɪ (*ü*) high-mixed-wide. Vulg. E. ʊɪɪɒ (two).

ɫ (ö) mid-mixed-narrow.

ɫ (*ö*) mid-mixed-wide. Fr. *dot*.

ɪ (ö) low-mixed-narrow.

ɪ (*ö*) low-mixed-wide. Sw. dialectal *son*.

f (y) high-front-narrow. Fr. *lune*. f› Sw. *y*.

f (*y*) high-front-wide. Germ. *hütte*.

{ (ə) mid-front-narrow. Fr. *peu*.

{ (*ə*) mid-front-wide. Fr. *peur*.

ɪ (œ) low-front-narrow. Sw. *höra*. ɪ› Fr. *un*.

ɪ (*æ*) low-front-wide.

Glide-Vowels.

ɪ (ʌ) voice-glide. E. ɤʃɪɪ (here).

ɪ (ʌv) voice-glide-round. E. ɤɉɪ (how).

These symbols imply a traditional murmur without fixed configuration. In deliberate utterance the above words might be written ɤʃɪɪ, ɤɉɪɪ. ɪ might be written in the slurred pronunciation of *against*—ɪɵ[ɿsʊ.

The other glide-vowels being simply the full vowel symbols shortened, do not require to be enumerated.

Consonants.

ɵ (ʮ) throat(-open-breath). ɵʌ=Arabic *hha* (?).

ɵ (ɪ) throat-voice. ɵ›=Dan. *r*. ɵʌ=Arabic *ain* (?).

x (;) throat-stop (glottal catch). Danish 'stödtone.'

c (-) back. Sc. and Germ. *loch*.

є (ʒ) back-voice. Middle Germ. *tage*. є(ɪ)=Germ. *r*.

ɷ (ç) front. Sc. *hue*. Germ. *ich*. ɷ› Germ. *süchtig*. ɷ› South Sw. *skepp*.

ɷ (j) front-voice. E. *yes*.

ʊ (r) point. ʊɪ=Icel. *hr*.

ɷ (r) point-voice. E. *red*. ɷɪ=Sc. *red*. ɷ› Russ. *rʼ*. The Sw. 'thick' *l* (Hb. p. 214, Storm, p. 24) may be symbolized by ɷɪ, implying an attempt to combine ɷ and ɷ. The Japanese *r* (Hb. § 244) is ɷ)ɷ.

s (s) blade. E. *hiss*. sɪ is apparently the German *s* in *dein*. s› Russ. *sʼ*. s Sw. *kors*.

s (z) blade-voice. E. *is*.

ƨ (ʃ) blade-point. E. *fish*. ƨ› Germ. *sch*. ƨ› Polish *ś*, Norw. *sjæl* (Storm, p. 43).

ƨ (ʒ) blade-point-voice. E. *measure*.

ʊ (þ) point-teeth. E. *thin*.

ɷ (ð) point-teeth-voice. E. *then*. ɷ› Dan. *gud*.

ɔ (ɸ) lip. Romaic φ (?).

ɔ (β) lip-voice. Middle and South Germ. *w*.

> (f) lip-teeth. >› Russ. *krovʼ*.

ɜ (v) lip-teeth-voice.

є (ɫ) back-divided.

є (ɫ) back-divided-voice. Russian and Polish guttural *l*.

ɒ (*l*) front-divided.

ɷ (*l*) front-divided-voice. Italian *gl*.

ꞷ (l) point-divided. Icel. *hl*. ꞷᵘ Welsh *ll*.
ꞷ (l) point-divided-voice. English *l*. ꞷ(Dutch *l*. ꞷ\ French *l*.
ɜ (ɸ*) lip-divided.
ɜ (β*) lip-divided-voice.
ɑ (k) back-stop. ɑ\ older E. *kind*. ɑɒ Russ. *komnata*.
ɑ (g) back-stop-voice.
ɑ (c) front-stop. ɑʲ=Russian *ть*.
ɑ (ɟ) front-stop-voice. ɑʲ=Russian *дь*.
ɔ (t) point-stop. ɔʲ Fr. *tête*. ɔɔ Sw. *kort*.
ɒ (d) point-stop-voice.
ɒ (p) lip-stop. ɔ| Germ. *p* in *pfund*.
ɒ (b) lip-stop-voice.
ɹ (q) back-nasal.
ɹ (q) back-nasal-voice. E. *sing*.
ɾ (ɰ) front-nasal.
ɾ (ñ) front-nasal-voice. Ital. *gn*.
ɔ (n̩) point-nasal. Icel. *hn*.
ɔ (n) point-nasal-voice.
ɾ (m̩) lip-nasal.
ꟻ (m) lip-nasal-voice.
ɑ (x*w*) back-lip. Germ. *auch*.
ɑ (ɣ*w*) back-lip-voice. Germ. *auge*.
ɔ (ʍ) lip-back. E. *wh*.
ɔ (w) lip-back-voice. E. *w*.

Revised Romic.

The general principles of the Revised Romic notation here employed have been already indicated in outline.

The main distinction between this notation and the older one used in my *Handbook* is the introduction of diacritical letters and new types whenever they are already in existence, italics being restricted as much as possible to the function of

modifiers, which are made as complete as possible, so as to facilitate the symbolization of new sounds. Capitals have been eliminated entirely, because they are often not provided for several founts, and because they do not readily admit of diacritical modification; but they may, when convenient, still be employed to denote special sounds. When italics fail as modifiers, punctuation and other marks are employed, as by Mr. Ellis, though necessarily with frequent deviations from his usage.

The main improvement in the vowels has been the consistent symbolizing of the mixed vowels by two dots above the corresponding front open, and back round vowels, (ä) and (ɑ̈) being for the sake of convenience used instead of dotted (æ) and (ɑ). A single dot may be used to denote intermediate positions, thus (ȧ)=ɐ̇. (ʏ) and (ʌ) have been superseded by (ɯ) and (*u*), which at once suggest relationship with (u) and (*u*).

In the consonants the use of β, ç, ð, ʒ, ɬ, ñ, ɸ, ʃ, þ, ȝ, taken from the Anglo-Saxon, Greek, and various European alphabets, and from Pitman's Phonotypy, is self-evident. (x) is used in preference to χ, as its italic (*x*) gives the necessary back-modifier. For the fronts the (c) and ç of Sanskrit transliteration recommend themselves, while the turned ɟ is convenient for ɑ, being readily associated with (j). The voiceless and front liquids and nasals offer great difficulties, which have been more or less successfully overcome by a combination of turning and dotting, the latter being familiar in Sanskrit transliteration. It was impossible to carry out either of these methods exclusively, because some liquids, such as (w), are not provided with dots, while (n) cannot be inverted. ɔ and ɔ offer the greatest difficulty, and the only resource has been to fall back on italics.

Details will be best seen in the following (as near as possible) alphabetical list, in which turned follow unturned, italic unitalic, modified unmodified, and foreign the nearest native letters. When a turned letter, however, suggests associations with some other letter, it follows that letter; thus (ɔ) follows (o). The organic equivalents are not

repeated where the symbols are identical in both systems. The forms in brackets are optional ones.

a = ʃ
ɐ =]
a = ȷ
ɒ = ȷ
æ = ɩ
æ = ɩ
ä = ɪ
ä = ɪ
b = ɒ
β = ɘ
c = ɑ
ç = ɔ
d = ϖ
ɤ = ɯ [δ]
e = [
ə = {
e = [
ə = {
ë = l
ë = l
f = >
g = ɑ
ʒ = є [γ]
h = °, ɐ
h = :
h*h* = o [ʜ]
ɦ = ॥
i = ſ
i = ſ
ï = ɪ
ï = ɪ
j = ω
j = ╲
ɟ = ɷ
k = ɑ
γ = ı

l = ω
l = ω
ḷ = ω
ḷ = ω
ɫ = ɛ
ɫ = ɛ
m = ꟻ
ṃ = ꞅ
n = ƺ
n = ʃ
ṇ = ʒ
ñ = ɩ
ŋ = ɩ
o = }
ɔ = }
o = }
ɔ = }
œ = ɫ
œ = ɫ
ö = ɫ
ɔ̈ = ɫ [ʃ]
ö = ɫ
ɔ̈ = ɫ [ʃ]
p = ɒ
ϕ = ɔ
q = ɹ
q = ɹ
r = ω
r = ʃ
ṛ = ɔ
ɹ = ɸ
ɹ̣ = ɸ
s = s
s = ʃ
ʃ = ɛ [f]
t = ʊ

⸢h⸣ = ╲
þ = ∪ [θ]
u = ɫ
u = ɫ
ü = ɫ
ü = ɫ
ɯ = l
ɯ = l
v = ɜ
ʌ = ɪ
v = ɔ
 = :
w = ɜ
ʍ = ɔ
w = ɔ
x = c
x = (
y = f
y = f
z = s
ʒ = ɛ
(a)ı = ʼ [aa, aɪ]
a·
a. = ʃ.
a:
a, = ʃ·

a‚ = ʃ·
(') = ·
z' = sɔ
; = x
; = ɹ [:]
! = ›
¡ = ‹
? = ›
¿ = ‹
)
]
°
*
+ = c
† = ɔ
§ = ·
§§ = ʜ
a¹ = ʃ·
j¹¹ = ω:
a₁ = ʃ·
j₁₁ = ω:
r+*j* = ω+ω
= (*Hb.* § 182)
<
>

General List of Symbols.

Vowels and Glide-Vowels.

lı ɯ	Iɪ ï	ʃɾ i	lı *ɯ*	Tɪ *ï*	ʃɾ *i*
]ɔ ɐ	]ı ë	[ɾ e	]ɔ a	]ı *ë*	[ɾ *e*
ʝʝ ɒ	ɪɪ ä	ɪɪ æ	ʝʝ *a*	ɪɪ *ä*	ɪɪ *æ*
łɫ u	Ɨɨ ü	fɾ y	łɫ *u*	Ɨɨ *ü*	fɾ *y*
ɟɟ o	ɫɫ ö	fɾ ə	ɟɟ *o*	ɫɫ *ö*	fɾ *ə*
ɟɟ ɔ	ɪɪ ɔ̈	ɪɪ œ	ɟɟ *ɔ*	ɪɪ *ɔ̈*	ɪɪ *œ*

General Symbols.

*	+	‡	•	•	·	:	˅
˄ (.)	˅	=	<	>	⌣	]	)
> !	< ¡	> ?	< ¿	∧ (¹)	∨ (₁)	ˆ (¹¹)	ˇ (₁₁)
∸ (¹)	∓ (₁)	⊣ (,)	⊢ (,)	⊂ ⸸	⊃ †	(*x*	\ *j*
\ *ɟ*	) *v*	ɒ *w*	ʃ *s*	ǀ *y*	‖ *ɦ*	⊬ §§	⊬ §
ʃ *n*	ʃ *r*	∘ h	ϱ h	∘ h)	꞉ *h*	I ∆	
Ŧ ʌv	' (')	꞉ *a*	ɪ ;	∘ (°')	⊳ (°)		

Consonants.

ɵ ɪ	c x	ɒ ç	ʊ ṛ	ʋ þ	s s	ɛ ʃ	ɔ ϕ	ɔ ʍ	> f
o h*h*	ɛ ɫ	ɷ *l̦*	ω l̦	ω+ l̦,			ɜ ϕ*		
x ;	ɑ k	ɑ c	ʊ t	ʊ+ t,			ɒ p		
	ɹ q	ɾ ŋ̣	ɾ ṇ	ɾ+ ṇ,			r ṃ		

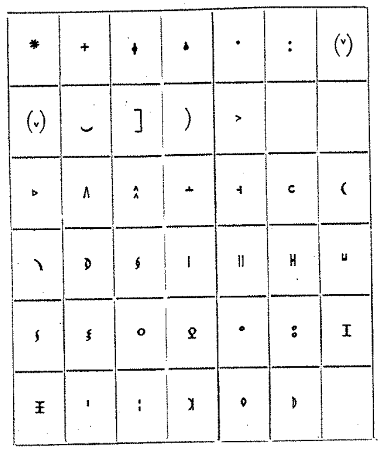
ɵ ɪ	є ʒ	ɷ j	ω r	ʋ ɤ	s z	ɛ ʒ	ɜ β	ɔ w	> v
	ɛ ɫ	ɷ *l*	ω l	ω+ l,			ɜ β*		
	ɑ g	ɑ ɟ	ʊ d	ʊ+ d,			ɒ b		
	ɹ q	ɾ ñ	ɾ n	ɾ+ n,			ꟻ m		

All the organic symbols are printed from the following types.

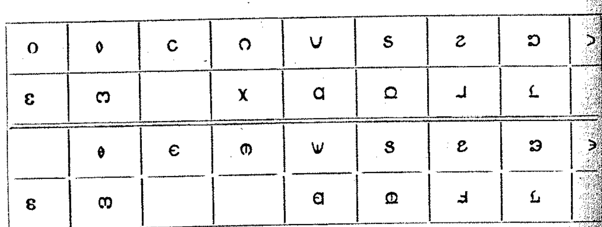
40 Vowels and Glide-vowels.

lı	Iɪ	ʃɾ	]ɔ	]ı	lı	Tɪ	ʃɾ	]ɔ	]ı
łɫ	Ɨɨ	fɾ	ɟɟ	ɫɫ	łɫ	Ɨɨ	fɾ	ɟɟ	ɫɫ

39 General Symbols.



30 Consonants.



109 types in all, from which 177 single characters are printed.

Specimens.

The following specimens will give the means of judging of the practical working of the revised Organic and Romic notations, and, at the same time, will sum up the latest results of the analysis of the sounds of these languages, which, it need hardly be said, is far from being final. The improvements in the French specimen are almost entirely due to the criticisms of Professor Storm.

English.

The following key-words will show the English vowels as I now analyse them:

] (ɐ)	come	ɑ]ꟻ	(kɐm)
]ɪ (aı)	far	>]ɪ	(faı)
ʅɾ (ëi₁)	eye	ʅɾ	(ëi₁)
Iɪ (äı)	burn	ɒIɪʒ	(bäın)
Iǂ (ä̈ɔ)	how	ϱIǂ	(hä̈ɔ)
I (ä)	together	ʊIɑ·ʃɥI	(tägeðä)
ɾ,ɾ (i,i₁)	finny	>ɾʒɾ	(fini₁)
ɾ (ii¹)	see	sɾ	(sii¹)
ɾɪI (iıä)	hear	ϱɾɪI	(hiıä)
[(e)	men	ꟻ[ʒ	(men)
[ɾ (ei₁)	mane	ꟻ[ɾʒ	(mei₁n)
[ɪI (æıä)	air	[ɪI	(æıä)
l (æ)	man	ꟻlʒ	(mæn)
ǂ (u)	full	>ǂω	(ful)
ǂ) (uu¹)	fool	>ǂ)ω	(fuu¹l)
ǂɪI (uıä)	poor	ɒǂɪI	(puıä)
ǂɾ (oi₁)	boy	ɒǂɾ	(boi₁)
ǂ) (oo¹)	no	ʒǂ)	(noo¹)
Jɪ (ɔı)	naught	ʒJɪʊ	(nɔıt)
J (ɔ)	not	ʒJʊ	(nɔt)
Ɉ (ɔ̈)	follow	>JωɈ	(fɔlɔ̈)

The consonants are: ϱ(h), ɷ(j), ω(r), ᴜ(þ), ɯ(ð), s(s), ƨ(z), ʃ(ʃ), ɛ(ʒ), ɔ(ʍ), ɜ(w), >(f), ≥(v); ω(l); ɑ(k), ɑ(g), ʊ(t), ɷ(d), ɒ(p), ɒ(b); ɟ(q), ʒ(n), ꟻ(m).

Sentences.

1) [illegible] 2) [illegible] 3) [illegible] 4) [illegible] 5) [illegible] 6) [illegible] 7) [illegible] 8) [illegible] 9) [illegible] 10) [illegible] 11) [illegible] 12) [illegible] 13) [illegible] 14) [illegible] 15) [illegible] 16) [illegible]

1) kɐmɐ·pät ·wɐns. 2) :ðisizðä ·þäıd tëimëiv häıdävizrităın. 3) -hɨj dɐznt sɨjmtä fɨjlɨtä toıl. 4) hɨıärän ðæıärändevrɨʌæä. 5) -ðei keim bækðä seim dei. 6) -ðä mænuwh·ædðä ·hætäniz hed. 7) -ëid raıðän·ət goo^{1}e·ni faıðä. 8) häɔ hëiizð·æt täɔä`. 9) -äb·äɔt foıtiɔ fifti ·fɨjtëiʃädþ·iqk. 10) -wil juw kɐm tuw'. 11) -ëim ʃuıärëi doo^{1}nt noo^{1}. 12) -ëi soıimfärä moo^{1}mintätðä doıä. 13) oıl wäıkän noo^{1} plei meiks dʒækä dɐl ɓoi. 14) ʌitʃwɐn wɔzit. 15) -ëi þoıt ðætwäz oıl dɐnwið. 16) -ëi didnt sɨj dʒoıdʒät tʃäıtʃtäd·ei.

1) Come up at once. 2) This is the third time I have heard of his return. 3) He does not seem to feel it at all. 4) Here and there and everywhere. 5) They came back the same day. 6) The man who had the hat on his head. 7) I would rather not go any farther. 8) How high is that tower? 9) About forty or fifty feet I should think. 10) Will you come too? 11) I am sure I do not know. 12) I saw him for a moment at the door. 13) All work and no play makes Jack a dull boy. 14) Which one was it? 15) I thought that was all done with. 16) I did not see George at church to-day.

Prose.

(For key see p. 177.)

[illegible]

[illegible]—ʒ, ɫ, þ.

[illegible]—ā, ä, ã.

[illegible]—ə, ɐ, ɔ.

[illegible]—*a*, ʌ, ə.

[illegible]—th, dh, nj.

SOUND NOTATION.

By HENRY SWEET, M.A.

Read before the Philological Society, 14 January, 1881.

[Reprinted from the Transactions of the Philological Society, 1880-81, pp. 177-235.]

Phonetic Notation.

(Phil. Trans. 1880-81, p. 177.)

Sweet, Henry, 1845-1912

Sound notation / by Henry Sweet, M.A.

Read before the Philological Society, 14 January, 1881.

[Reprinted from the Transactions of the Philological Society, 1880-81, pp. 177-235.]

1. Phonetic notation. I. Philological Society (London) II. Title.

[illegible]

French.

The following are the vowels:

[illegible] (a)	patte	[illegible]	(pat)
[illegible] (*a*)	pâte	[illegible]	(p*a*t)
[illegible] (*an*)	sang	[illegible]	(s*an*)
[illegible] (i)	fini	[illegible]	(fini)
[illegible] (e)	été	[illegible]	(ete)
[illegible] (*e*)	père[1]	[illegible]	(p*e*ȥ)
[illegible] (*æn*)	vin	[illegible]	(v*æn*)
[illegible] (u)	sou	[illegible]	(su)
[illegible] (o)	beau	[illegible]	(bo)
[illegible] (*o*)	or	[illegible]	(*o*ȥ)
[illegible] (*on*)	son	[illegible]	(s*on*)
[illegible] (ö)	homme	[illegible]	(öm)
[illegible] (y)	lune	[illegible]	(lyn)
[illegible] (ə)	peu	[illegible]	(pə)
[illegible] (*ə*)	peur[2]	[illegible]	(p*ə*ȥ)
[illegible] (*œn*)	un	[illegible]	(*œn*)

[1] Also in *dette*, *tête*.
[2] Also in *que*.

It is doubtful whether the following are to be considered as glide-vowels or consonants, but they are here written as glide-vowels:

[illegible] (i)	rien[1]	[illegible]	(ȥiæn)
[illegible] (o[1])	oui	[illegible]	(o[1]i)
[illegible] (y)	lui	[illegible]	(lyi)

The consonants are: [illegible](xr, as in *théatre*), [illegible](ȥr), [illegible](s), [illegible](z), [illegible](ʃ), [illegible](ʒ), [illegible](f), [illegible](v); [illegible](l, as in *table*), [illegible](l); [illegible](k), [illegible](g), [illegible](t), [illegible](d), [illegible](p), [illegible](b); [illegible](ñ, as in *vigne*), [illegible](n), [illegible](m).

[illegible]

lə maȥki n et*e* puȥt*an* p*a*z œn *ö*m də ʒeni. il et*e* sav*an*′, me sav*an* s*an* spesialite̍, a mo[1]*æn* k *on* n vəi apl*e*ȥ *æn*si′ yn gȥ*an*d abilite puȥ s*e*ȥt*æn*z uvȥ*a*ʒ s*an*z ytilite okyn′, d*on* nuz *o*ȥ*on*z *a*se suv*an* liə d p*a*ȥle ply t*a*ȥ′, e ki av*e*t aps*o*ȥbe ʒyska la p*a*si*on*′, ʒyska la mönömanɨ le di d*e*ȥni*e*ȥz ane d sön egzist*an*s.

Le marquis n'était pourtant pas un homme de génie. Il était savant, mais savant sans spécialité, à moins qu'on ne veuille appeler ainsi une grande habilité pour certains ouvrages sans utilité aucune, dont nous aurons assez souvent lieu de parler plus tard, et qui avaient absorbé jusqu'à la passion, jusqu'à la monomanie, les dix dernières années de son existence.

[1] Also in *habiller*, *deuil*.

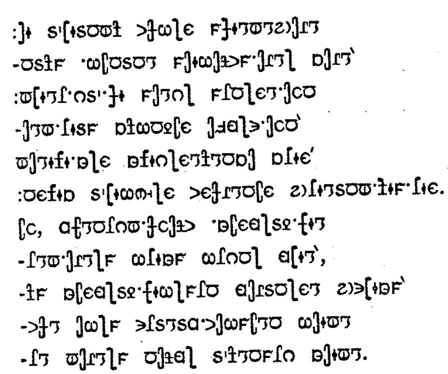
German.

The North-German vowels are:

ʃ (a)	mann	ꜰʃɔ	(man)
ʅ (ë)	gerettet	ɑʅɛ·ʃɔʅɔ	(gëʒ·etët)
ʃ+ (ii)	biene	ɒʃ+ɔʅ	(biinë)
ʃ (*i*)	bin	ɒʃɔ	(b*i*n)
ʃ+ (ei)	see	sʃ+	(s'ei)
ʃ (*e*)	fest	>ʃsɔ	(f*e*st)
ɟ+ (ui)	gut	ɑɟ+ɔ	(guit)
ɟ (*u*)	und	ɟɔɔ	(*u*nt)
ɟ+ (oi)	sohn	sɟ+ɔ	(s'oin)
ɟ (*o*)	sonne	sɟɔʅ	(s'*o*në)
ʄ+ (yi)	grün	ɑɛʄ+ɔ	(gʒyin)
ʄ (*y*)	schützen	ɛ>ʄɔsɔ	(ʃv*y*tsn)
ʄ+ (əə)[1]	schön	ɛ>ʄ+ɔ	(ʃvəin)
ʄ (*ə*)	götter	ɑʄɔʅɛ	(gətëʒ)

The diphthongs are: ʃɾ(a*i*), ʃɾ(a*u*), ɟɾ(o*i*).

The consonants are: ɤ(h), c(x), ɛ(ʒ), ɔ(ç), ɷ(j), s(s), s(z), ɛ>(ʃv), >(f), ɜ(v); ɷ(l); ɑ(k), ɑ(g), ɔ(t), ɷ(d), ɒ(p), ɒ(b); ɹ(q), ɔ(n), ꜰ(m).



[1] Wide in Hanover.

:oi s'eistdu *f*olëʒ moindnʃ*vain*
-ts*u*m ·*l*etstn mailauf*m*·a*i*në pa*i*n'
:deini·çs'·oi mançë m*i*tëʒn·axt
-and·iizm p*u*lthe*ʒ* aqgëv·axt'
daniyi·bëʒ byiçëʒn*u*ntpa piiʒ'
:tʒyip s'eiljëʒ fʒ*o*inteʒ ʃviinstd·uum·iiʒ.
ax, k*ə*ntiçd·oxauf ·beʒgësh·əin
-*i*nd·a*i*nëm liibm liçtë gein',
-*u*m beʒgësh·eilëm*i*t ga*i*stëʒn ʃveibm'
-*f*on alëm v*i*snsk·valm*e*nt laidn
-*i*n da*i*nëm ta*u*gë s'*u*ntmiç baidn.

O sähst du, voller mondenschein!
zum letztenmal auf meine pein,
den ich so manche mitternacht
an diesem pult herangewacht!
dann über büchern und papier,
trübsel'ger freund! erschienst du mir.
Ach! könnt' ich doch auf bergeshöh'n
in deinem lieben lichte gehn,
um bergeshöhle mit geistern schweben,
auf wiesen in deinem dämmer weben,
von allem wissensqualm entladen,
in deinem thau gesund mich baden!

Corrections to Handbook of Phonetics.

Several of the many errors in my *Handbook* have been tacitly corrected in the course of this paper: I here give all the corrections I am able to make in the order of their occurrence in my book.

p. 3, note [a], *read*: The usual diacritic (ʽ) *before* the letter to be modified is occasionally employed to denote breath; before a voice-symbol it denotes whisper, thus (ʽg) = whispered (g).

p. 4, § 12, *for* ʽʌ *read* ʽʌ.

7, § 19. I was told by Mr. Bell that in the Glasgow

'water,' etc., the oral stop is really formed simultaneously with the glottal stop, not suppressed, =ɔʔɔɪʔʊs.

25, § 64. It is very doubtful whether ɪ really occurs in the E. 'eye'; the real sound is ʔɑɪ.

§ 66. The distribution of the various *a*-sounds has been very carefully determined by Storm (*E. Ph.* p. 67 foll.), especially in the Romance languages. His observations may be summed up thus: ɐ=English, short Danish, Italian (ɐ). Swedish short *a* almost=ɐ. ɐ=French short, Spanish. ɐː long Danish. ɑ French *â*, Norwegian short and long, Swedish long inclining to ɒ.

26, § 68. Add French *pâte*, and cut out the reference to Italian.

§ 69. The American earth has ʔ, not ɪ. See p. 213 of this paper. The Russian ɪ is nasal only after nasal consonants; see my paper on Russian pronunciation.

§ 71. French *que* has ʃ.

§ 72. The neutral position in E. seems to be always the low-mixed. The Swedish *ej* is pure ɤɪ. See my 'Spoken Swedish.'

27, § 73. It is only since my study of Swedish that I have learnt to distinguish accurately between ɪ and fully lowered ɨ. I have not found the former in any language but E., and wherever it is attributed to foreign languages the reader must substitute ɨ (p. 124 Fr. *un*, 140 Dutch *lui*, *huis*, and Icelandic *skömm* in the present passage).

§ 75. I take this opportunity of retracting my statement in the *History of English Sounds* (p. 29, 45, etc.) that the South German short *i* and *u* are narrow. I have always heard ɾ and ɨ all over Germany, but was misled by the very positive statements of Rapp, who expressly contrasts North and South German *i* and *u* (Physiologie der Sprache, iv. 85), himself a born Swabian. The wides must be old in South German, for in some of the Swiss dialects their lengthenings are still wide (Winteler, Kerenzer Mundart).

§ 77. According to Storm and Dr. Wulff (p. 64, note [1]) the French *é* is, like the Swedish and Danish, normal, the Danish sound being really ɛ˕.

28, § 78, 79. Southern E. always has ɾ in *end*, nor does ɪ seem to occur in French, except when nasal. I was misled by the very positive distinctions made by French phoneticians between 'ouvert' and 'très-ouvert.'

§ 80. South G. *ä* is rather ɪɬ than ɤɬ.

§§ 85, 86. According to Storm and Dr. Wulff (*E. Ph.* 70, note [1]), the Danish long and short open *o* are opener than the Norse and Swedish ones, the Sw. long sound being closer than the Norse, thus giving the following scale for the long sound: Dan. ɒɷ, Norse ɒ, Sw. ɒʌ. Storm thinks that the Norse short sound is identical with the North Germ. short *o* (ɔ), the Dan. being decidedly nearer the English sound. To my ears Sw. *gott* is opener than Germ. *gott*, and I would write the series: English ɔ, Dan. ɒɷ, Sw. ɒʌ.

§ 87. Sw. long *u*=ʉɬ. Vulgar English *two* is often tʊʉɬ.

§ 88. The short E. vowel in *room* does not appear to be ever advanced so far as ʉ.

§ 90. E. *ow* in *follow* is rather ɨ than ɵ.

30, § 93. Germ. short *ü* always wide.

§§ 96, 97. French does not seem to have ɨ, except when nasal.

39, §§ 112, 113. Storm (p. 86) says of the Spanish *d* that between vowels, as in *nada*, it is usually ʊɬ, but can be pronounced ʊ with loose approximation, like the Dan. *d*, which is the popular Castilian form. The *z* is quite parallel (=ʊv or ʊʌ?), Storm, p. 22.

42, § 126. Fr. *oui*=ɜɔɾ according to Storm.

43, § 128. The (oi)-sound of the Danish *bröd* is really due to transition from the deep ɞɞ to the palatal ɬɬ.

47, § 139. French ɷs=*gn* very dubious.

74, § 212. I believe E. initial *g* may be ɢˈ as well as ɑˈ.

77, § 222. In the aspirated ɑʰɔ, the full stress of the consonant is maintained without diminution through the glide; the expression 'separate impulse' is inaccurate.

122. The corrections in the French sounds are mainly due to Storm: *rien*, p. 33; *oui*, *Hb.* p. 213; *que*, p. 66. He is inclined to identify the *u* of *lui* (p. 69) with the Swedish ʉɬ: I believe it may be simply ɾ with full rounding, which to a

Swedish ear would seem nearer ɪ̈ than ɪɒ. See also p. 229 above. In his *E. Ph.*, p. 77 foll., will be found a lengthy controversy between him and myself as to whether French stress is normally on the first or the last syllable. I confess that the mere fact of such an authority as Storm taking the latter view seems to me far more important than the arguments by which he supports it. He quotes the views of Frenchmen, and yet admits that, without special training, they are incapable of distinguishing the place of the stress, and summarily rejects the testimony of the only Frenchman who has ever shown that he is capable of making the distinction. He quotes the mispronunciations of unphonetic English speakers, such as *Parry=Paris*, as a proof that the English hear the accent on the first syllable, which is quite an error: every untrained Englishman *hears* the ordinary French *Paris, monsieur*, when pronounced with equal stress on both syllables, distinctly as (par·ii, mos·jəə), whence the vulgar *mossoo* (mäs·*u*w), just as all the English pronouncing dictionaries mark all equal stress dissyllables as oxytone. In *speaking* French he simply follows the analogy of his own language and the associations of the written word. The true solution of the difficulty probably is that the French accentuation is in a period of transition: the tradition of the older end-stress still exists, but a general levelling of stress has taken place, so that the normal pronunciation of such a word as *Paris* is probably (p·ar·i), which is heard as (p:ar·i). This is a natural tendency of the ear, nothing being more difficult to identify than perfectly level stress. Thus no German ever pronounces English *plumpudding* (p·lʉmp·*u*diq) correctly: always either (p·lʉmp:*u*diq) or (p:lʉmp·*u*diq), the latter being what he hears (and what is marked in the pronouncing-dictionaries), the former what the written word and the associations of his own language suggest to him. Out of this level monotony of French stress is slowly emerging the principle of fore-stress. Storm allows such a stress, but calls it 'rhetorical,' which does not get rid of the fact of its existence. The French themselves, of course, generally deny it absolutely, just as they deny their frequent (h).

132. The North Germ. *eu* is often ɜɛ, but I seemed to hear ɜɾ in Hanover.

134. I doubt this glottal *r*, which is probably only an individual modification of the regular ɛ or ɛɾ.

135. *bilden*, etc., is ɐlɷʊɔ with omission of the l.

141. Dutch *g*, especially when initial, seems to be often more or less devocalized. *l* is ɷɤ.

153. For Swedish see my *Spoken Swedish*. In second line of sentences read (dɐl) for (dɐ).

160. Lines 8, 9, omit the accent before (læqrə) and (træqrə).

163. Dan. *gg* in *ligge* has the same pronunciation as in *ikke* (Storm, p. 40, note [3]).

Works Quoted.

Handbook of Phonetics (Oxford, 1877).
Sounds and Forms of Spoken Swedish (Trans. 1877–8–9).
Russian Pronunciation (Trans. 1877–8–9).
Johan Storm: Englische Philologie (Heilbronn, 1881).
Eduard Sievers: Grundzüge der Lautphysiologie (Leipzig, 1876).
J. A. Lundell: Det Svenska landsmålsalfabetet (Stockholm, 1879).

XII.—ON GENDER. By E. L. Brandreth, Esq.

My object in this paper is to consider what is the proper meaning and use of the term "gender," and with reference thereto to consider languages as consisting of two divisions, namely, gender languages and genderless languages; to give some account of the languages falling under these two heads, taking my information from such grammars as I could meet with; and then to refer to the erroneous notions which are

Corrections in Mr. Sweet's Paper on Sound Notation.

p.	l.		for	read
p. 224,	l. 10		*for* [illegible]	*read* [illegible]
225	1	(of specimen)	„ [illegible]	„ [illegible]
„	6	„	„ [illegible]	„ [illegible]
„	8	„	„ [illegible]	„ [illegible]
„	20	„	„ [illegible]	„ [illegible]
„	22	„	„ [illegible]	„ [illegible]
„	25	„	„ [illegible]	„ [illegible]
„	29	„	„ [illegible]	„ [illegible]
226	3	„	„ [illegible]	„ [illegible]
„	13	„	„ [illegible]	„ [illegible]
„	17	„	„ [illegible]	„ [illegible]
„	20	„	„ [illegible]	„ [illegible]
„	22	„	„ [illegible]	„ [illegible]
„	28	„	„ [illegible]	„ [illegible]
„	30	„	„ [illegible]	„ [illegible]
227	2	„	„ [illegible]	„ [illegible]
„	3	„	„ [illegible]	„ [illegible]
„	4	„	„ [illegible]	„ [illegible]
„	12	„	„ [illegible]	„ [illegible]
„	16	„	„ [illegible]	„ [illegible]
„	17	„	„ [illegible]	„ [illegible]
„	20	„	„ [illegible]	„ [illegible]
„	22	„	„ [illegible]	„ [illegible]
228	11	„	„ [illegible]	„ [illegible]
„	„	„	„ [illegible]	„ [illegible]
229	4	„	„ [illegible]	„ [illegible]
230	1	„	„ [illegible]	„ [illegible]

„ after l. 9, insert: [illegible]