III.—SEMI-VOWELS, OR BORDER SOUNDS OF CONSONANTS AND VOWELS, AS EXEMPLIFIED IN SOME OF THE ROMANCE AND GERMANIC LANGUAGES AND IN ENGLISH, GAELIC, AND WELSH.

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EXPLANATORY REMARKS AND KEY.

I use in this paper phonetic spelling only where necessary for the subject. Being averse to fresh phonetic systems, I use the alphabetic characters in Sweet's "Primer of Phonetics," with a few alterations, which seem simpler for printer and reader, chiefly taken from M. Passy's system. Phonetic spellings and single letters intended as phonetic symbols are in brackets. Words quoted in ordinary spelling are between inverted commas, as are also single letters, when alluded to as regards their usual sound in the language referred to; thus, the French 'u.'

Key.—Sweet's phonetic spellings, as far as they are referred to in this paper: (a, e, i, o, u, y) represent the vowels in English "but," German "see," French "si," German "so," French "sou," "lune"; same in italics, English "father," "men," "bit," German "stock," English "put," German "schützen"; (ä) the vowel in English "sir"; (ë) German neutral-terminal vowel in "gabe"; (ï) Welsh 'u'; (ü) Ulster and Lowland Scotch and Swedish vowel in "cool" and "hus"; (*ë*) the English neutral vowel terminal in "better"; (*ï*) a Scotch sound of short 'i' as in (hït)="it"; (ʌ)=a Scotch Gaelic sound, *i.e.* (u) pronounced with unrounded lips; (ə) as in French "peu" and German "schön"; (*ə*) as in French "peur"; (*ɐ*) or a reversed '*a*,' the Lowland Scotch broad 'a' as in "man" (m*ɐ*n), also the French nasalized 'a' as in "grand"; (ɔ, *ɔ*) as in English "law," "not"; (b, d, g, f, p, t, k, l, m, n, v, z) have their usual sounds, (g) being understood always as hard; (*β*, ð, *γ*) are the unstopped sounds in Mid-German 'w' and in Spanish 'b' in "saber,"

English "that," and Dutch unstopped 'g' like as in German "sagen"; (ɸ, χ) are the voiceless correlatives to (β) and (γ), the latter as in Scotch "loch"; (s) is always the voiceless 's'; (ʃ, ʒ) are English 'sh' and French 'j'; (j) has the German value as of 'y' in "yet"; (w) the English consonantal value as in "wet"; (ʍ) 'wh' as in "what"; (c, ɟ) are the voiced and voiceless palatal stops with the tongue as for 'y' in "yet"; (ç) is German 'ch' in "ich" or Scotch and Irish 'h' in "hue"; (ʎ, ɲ) are palatal (l) and (n); (ŋ) is 'ng' in "sing"; (r) is the lingual or point, (R) the back or uvula 'r'; (ɻ) or a reversed 'h' is the French consonantal 'u' as in "huit." Voicelessness may be signified by small ₒ written underneath thus: (r̥), voiceless (r); nasality by (˜) above the letter thus: (ã), nasal (a). Doubling a letter signifies length, thus: (ee), long (e). Where necessary, varieties of position may be marked with accents thus: advanced (ṙ), retracted (ṛ); and stress may be marked thus: (ū), stressed (u). Quotations from English dialects in phonetic spelling by Ellis are, to avoid confusion, transcribed into the phonetic spelling observed in this paper. (ä), omitted above, is a broader sound of (ä).

Since writing the paper I found my landlord in London, Mr. Parry, of 36, Eardley Crescent, to be a Welsh-speaking Denbighshire man, and he kindly gave me some lessons, and I found Welsh gave examples very suitable to my purpose. Those examples, which I have dovetailed in, I give in my tutor's pronunciation, which, from perusal of Rowland's Welsh Grammar, seems fairly representative, and is certainly purely native and indigenous. But Welsh scholars, I hope, may correct me if inaccurate or only local.

The term semi-vowel is hardly recognized in the classifications of the modern schools of phonetists, whether English or Continental. It is alluded to by several as descriptive of the qualities of certain sounds partaking of the nature of both consonant and vowel, but as these qualities are not specially included in those which form the essential basis of the most practicable classification of speech sounds, the group, to which I shall allude as "semi-vowels," is made up of sounds which lie rather athwart any usual satisfactory classification, but having such relations and showing such developments from and to other sounds, that their special study is, I think, very fruitful to phonetists and philologists in general.

The semi-vowels most universally recognized as such, and well exemplified in English, are (w) as in "wound," and (j) as in "yield." I purposely use instances where semi-vowel-consonant, and nearest resembling vowel in English are used in juxtaposition, and so better to display the difference from the consonant preceding. The commonness of the vowels (i) and (u) attracts attention to the obvious semi-vowel character of their related consonants (j) and (w), and by many observers they only have been referred to as *semi-vowels*. Sievers, "Grundzüge der Phonetik," 1893, pp. 148, 153, only describes (j) and (w) as "halbvocal"; and Rhŷs, in his "Manx Phonology," also only treats of these two as semi-vowels, which he describes as such and with careful detail; but Sweet, while not using the term semi-vowel, in passages alluding to the relations of consonants to vowels, "Primer of Phonetics," pp. 39, 40, shows that (ɣ) should be included in the group along with (j) and (w), and he sets down these relations with back, mid, and front positions of these consonants, and back and front of both open and round vowels, with some minuteness. Passy, in "Changements Phonétiques," pp. 93, 94, concisely sums up the list as he finds of these relationships, alluding to them as "souvent appelées semi-voyelles," thus:

consonants (j) (w) (ɥ) (ɣ).
vowels (i) (u) (y) (ʌ).

Practically these two authorities agree, only Sweet dwells more on some varieties of articulation. If we examine these semi-vowels, we find it depends on the degree of the squeeze whether a border sound of this kind be vowel or consonant, and the tightness of the squeeze is usually in inverse proportion to the vocal stress, so that by advancing the vocal stress English "ear" would resemble German "ja." In speech, to give the sonorous effect of vowel, voice must be given with as little friction as possible consistent with the articulation of the vowel, but the essence of consonant is the friction which it is sought to avoid in uttering a vowel. Now, though Sweet puts low vowels as related to the respective varieties of his consonants, it will be found that the vowels most near these open consonants are those in which the tongue position is high. All the four vowels that Passy enumerates come under this category. The reason is obvious. For instance, in the vowel (ʌ), as may be heard in Gaelic "laogh," "baoghalta," "a-h-aon," the

first in Argyll Gaelic and all in Deeside Gaelic, the ear can hardly fail to perceive the same relation between it and (ɣ) as between (i) and (j). Now in (ʌ) the passage of the voice is narrowed, almost squeezed, between the upper side of the back of the tongue and the part of the roof of the mouth nearest it, the mouth cavity being left pretty free between the tongue and the outer teeth. It will be found that the position of the organs for this sound is exactly the same as that for (u), only that the sound is not rounded as for (u) by compression of lips and cheeks. The sound of (ʌ) does not, however, in Gaelic words suggest to the ear any resemblance to (u), but more to the rounded Continental sound in "peu," "peur," "schön," "gotter," only with a deeper sound, and more indistinct at first—partly in consequence of its strangeness; and here I may note that Sievers, "Grundzüge," p. 99, in commenting on the Armenian sound with which this vowel has also been identified, says "dieser letztere Laut klingt uns auch sehr ö-ähnlich," so he must have observed the same resemblance, and the Gaelic (ʌ) may appear at first hearing to be practically the same as the German 'ö,' but Gaelic has really both sounds. The word "laogh" seems more universally pronounced with (ʌ) than most words, but in some dialects (ə), a sound almost identical with the German one in "götter," is used instead in that word, and in Argyll and most of the west generally in "aon" (ə̃n), while in Braemar this would only be (ʌ̃n) in counting, as "a-h-aon" when used emphatically.[1] The fact is, the formation of the vowel by the squeezing of the tongue at the back of the mouth gives it a false resemblance to a round sound, and makes it at the same time very unstable, while a very little increase of the squeeze at once brings it into one of the positions, and the one most resembling a vowel sound of the back open consonant or semi-vowel (ɣ), just as the same process with regard to (i) and (u) results in (j) and (w). Sweet, indeed, draws the relations between the whole three of the back and front vowels respectively, and rounded and unrounded forms to the several positions of their approximate consonants, in both Handbook and Primer, but as he seems to admit in "Handbook," p. 51, the high positions are those lying on "the boundary between vowel and consonant," which cannot be drawn with absolute definiteness.

[1] In a sentence such as "cha'n-eil ach aon" = "there's but one," it would be (ə), or dropt forward and unrounded to (æ).

Ranging over the lists of vowels and consonants, we may see that the two sets approach one another at certain positions and constitute sounds which may belong to either of the two anciently recognized divisions of speech sounds. I propose to show that there are six such sounds, adding to Passy's four, mentioned before, (β)=the Mid-German 'w' in "wo" and Spanish 'b' in "saber," and the point (r).

I have dwelt somewhat on (γ) and its related vowel (Λ) because they are unfamiliar to English-speaking people, and the vowel almost unknown to the European world. This pair is at the extreme limit in one sense to (w) and (u), one of the most familiar pairs, and yet, in another sense, as we have seen, as regards the position of the tongue, closely related, and as far as the vowels are concerned, identical. The history of the development of several languages and the existing state of Gaelic dialects indicate there has been, so to speak, a kind of see-saw change as to these sounds, the consonantal squeeze shifting from the back of the tongue to the lips, or *vice versâ*, the main position of tongue remaining the same: thus, "ubh"=egg (uv) in one dialect we may suppose through (uw), which it still is in many, and (uγ) in another.

Having considered these two border points between consonants and vowels, let us try what other points of contact there are, first exhausting the lip positions. Sweet, following Bell as regards nomenclature, which weighs much in classification, makes (w) a modification of (β), which they term the "lip open" simply, the former "the back lip open," while (ɥ), the semi-vowel in French "huit," is styled by Sweet the "front" or "front modified lip open," and spelt (βj). Passy, more systematically, gives separate single letters for all three, spelling the French lip open by the sign I have adopted, but describing the German and Spanish sound as "une fricative bilabiale simple," agrees in principle to the classification and nomenclature of Bell and Sweet. But this, though true and practical in the main, seems to me somewhat to confuse a just estimate of the relationship of these sounds. All three have, as essential to their formation, not only lip compression, but a certain squeeze of the lips which destroys the freeness of a vowel sound and makes them rank with consonants. This feature is practically identical in all, and it may be easily observed, and is generally recognized, though not with perfect completeness, that tongue position marks the

differences; hence there is no just reason for considering one a less modified or more standard sound, or to be a simpler bilabial, than the other two, the tongue in (ɥ) being front as for (y), in (w) being back as for (u), and in (β) being neutral or mixed as for (ü); and it will be found, I venture to insist, that the same relationship in mechanical formation and in acoustic effect exists between (β) and (ü) as between (w) and (u), or as between (ɥ) and (y). This relationship, I think, has not hitherto been recognized, although both Sweet and Passy show such between the other semi-vowels and their nearest vowels. This is partly because of the comparative rareness of the vowel (ü), and partly because the consonant and vowel are scarcely found in the same language. Neither Spanish, Mid-German, nor Dutch possess (ü), but (β) belongs to them. Swedish, Norwegian, Ulster, Scotch, and Devonshire own (ü), but (β) is unknown to them. A very few of the numerous dialects of Scotch Gaelic may have both (ü) and (β), but the relationship is only to be detected by examining the sounds; in no case does it appear so clearly traced in the development of the language as that between (u) and (w), or (y) and (ɥ), as exhibited in French.

If we try gradually to move our organs towards a vowel from the other lip consonants, the lip stop (b) or the lip tooth (v), we find, the moment we loosen contact between lips or between lip and teeth, we pass through a sound closely resembling one or other of the three lip opens, as decided by the position of the tongue, before we arrive at a vowel.

Leaving the lip sounds and passing to the sounds formed by the tongue in different positions in the mouth, if we try in same way, by loosening the consonantal squeeze, to approach a vowel from any of the positions with lowered tongue tip—palatal positions—we find, as we found in the case of the labials having to go through a form of lip open, we have to go through a form of the front open (j) as the readiest road to a vowel. Then, if we try the turned-up tongue tip or point positions and proceed similarly, we at once find we have to go through some form of lingual or point (r). This is a very unstable sound, perhaps more so than the others, and certainly capable of passing into a much greater number of varieties, acoustically distinct, but having in common the turned-up point of tongue. Its manner of formation necessarily occasions this: the tongue tip, being free to range over a great space of the roof of the mouth, oscillating or gently

striking against some part, varies in sound according as the point of touch be further forward or backward; and if in such positions we proceed to try the nearest sound formed by slightly loosening the consonantal squeeze, we find that the vowel we reach depends on the point we depart from, because the tongue tip, if near the teeth, will leave a narrower passage between its upper surface and the roof of the mouth, and the organs will more readily form a high vowel; and if the tip be curved back, the mass of the tongue, concave above, giving greater resonance chamber, the loosening of consonantal touch takes a deeper sound, and the tongue, freed like an unbent bow, is hardly restrained from dropping into almost any mixed or back vowel, the tendency to aim at distinctness of sound choosing the latter. So that forms of lingual or point (r) are by their very nature capable, on the one hand, of assuming some of the harshest of sounds owing to their liability of being trilled, and, on the other hand, border on a larger number of vowels than any other of these semi-vowels.

Having described these semi-vowels in turn, and the grounds of considering them the border positions of consonants to vowels, I tabulate them with their nearest resembling vowels:

Consonants	(w)	(β)	(ɳ)	(γ)	(r)	(j)
Vowels	(u)	(ü)	(y)	(ʌ)	(ï)(i)(ë)(e)(ä)(a)	(i)

Three round and three unrounded; the one set almost the counterparts to the other. These semi-vowels have possible compound or blended forms—that is, two uttered simultaneously, some of which exist in actual speech, as (w) plus (γ), *i.e.* consonantal squeeze at lips and at back of tongue at same time, so (w) plus (r) and (β) plus (r). One or other of the two latter probably represented the old English "wr" initials preserved in Aberdeenshire, (w) having been changed to (v), as (vraŋ)="wrong." This compound semi-vowel is well displayed in Welsh by mutation from "gwr" initials, as "y wraig," "y wrach," "a wrendy." These blended semi-vowels are instructive in studying the historical development of speech, and I shall allude to them again.

If we assume the truth of Sweet's analysis of Arian consonants ("History of English Sounds," p. 83), (j), (r), and (w), the present English semi-vowels, were the original and only primitive ones in

Arian. According to the same authority, Old Germanic—parent of the Teutonic languages—had besides the Arian three, (β) and (γ) arising from aspirated stops becoming open. The semi-vowel (ɥ) seems only a French development from an earlier (u). The Continental Germanic languages have on the whole preferred (β) or (v) to (w), and (w) does not appear to have survived among them, except as generated between lip and front vowels in Dutch, while in many Romance languages (w) or (u) has developed in words in which it did not exist in parent Latin, and the original (w) sound of Latin 'v' has given place either to (β) or to the present lip teeth (v). The back open (γ) has died out in English and Swedish and in some German dialects, but seems still very strong in Dutch, Norwegian, Icelandic, and Danish, and has cropped up from Latin (g) or (k) in some Spanish dialects, and in some Parisian pronunciation replaces back (R), which itself succeeded an ancient and still provincial and old-fashioned point (r). The semi-vowels (j) and (w), more commonly than any of the others, have been developed as apparently parasitic sounds in connection with front and back vowels respectively. A Lowland Scotch form (jen) identical with the word in some dialects of Frisian, and the usual living English (wan)="one," Old English "*a*n," are very good instances. The northern, fronting the vowel to (een) or (en), took on (j); the southern, blunting it to (an), prefixed (w). Then we find such forms as (bw*ɔ*i)="boy," (bwail)="boil," (kw*ɔ*'t)="coat," inserting (w); and (gjeet)="gate," (gj*e*t'n)="gotten," inserting (j): see Ellis, "English Dialects," pp. 46, 65, 339, 344. Most people are familiar with an old-fashioned English and living Irish pronunciation inserting (j), as in (gj*a*rdn)="garden" and (kj*a*r)="car," but that seems more a trick of advancing the initial consonant, after which the (j) comes as an easy glide, than a development from the vowel, which is more clearly observed in the West of England (jaṙ)="here," where the 'he' part of "here" has disappeared and become (j), the true vowel part having been pulled back by the retracted (r). In the Romance languages and dialects are rich fields where may be found examples of the development and decay of all I have enumerated as semi-vowels, thus: French (lw*a*) "loi," (rw*a*) "roi," (vw*a*) "voix"; Latin "lex," "rex," "vox"; French (j*e*er) "hier," (bjæ̃) "biens," (ljə) "lieu," (vjæ̃) "viens"; Latin "heri," "bene," "locus," "venio." French dialects furnish also remarkable examples, thus: Vosges dialect, noted by M. P. Passy, (bwɔ̃),

(fwo), (fwerm*a*), (kwejo), (kwo:d); instead of French "bon," "fort," "fermer," "caillou," "corde"; dialect of Ezy-sur-Eure, noted by same, (jo), (pjo); instead of French "eau," "peau." The Spanish words "uevo," "fuego," "bueno," "buey," "siempre," "viento," "yerba," and the Italian "uomo," "uovo," "buono," "jeri," indicate the same tendency of a special labialization growing as an initial sound before some vowels and palatalization before others, which finally results in parasite (w) or (j).

English (w), being generally replaced by (β) or (v) in the kindred Continental tongues, what in English dialects would be this parasitic (w) becomes the mixed sound of (β), as in "kwam" (kβɒm) in Dutch.

Although, as I have shown, the French language is fond of generating a consonantal (w) by allowing old diphthongs beginning in (u) or (o) to have dropped the vowel quality of their initial sound, it has entirely lost the (w) sound in the old Latin combination 'qu' (kw). This combination, together with the voiced combination (gw), has a remarkable history in European languages. The Latins and the old Gaels possessed the voiceless 'qu' (kw); the Italians and Spaniards have, and the old French had the voiced 'gu' (gw); the Welsh have both (kw) and (gw), the former sparingly, the latter in great abundance. The modern Gaels generally have dropped the (w) out of the (kw), leaving simply (k) with pure vowel following; but the Manx, see Rhŷs, "Manx Phonology," have often preserved the old compound thus: Manx, "queig," "quoi," "quallian," "quaagh"; Gaelic, "coig,"[1] "co," "cuilean," "coimheach." In "cuimhne," in some Gaelic dialects, there is perhaps an apparently unavoidable approach to the (kw) compound, but even here one may generally notice a strong tendency to keep the (u) pure, particularly in those districts, predominant in Scotland and northern Ireland, where stress is on the first vowel thus—(kūin). Like the Gaels, the modern French have discarded (w) from both (kw) and (gw) compounds. The word "quoi" (kw*a*), due to an intermediate use of an 'oi' diphthong, need not be regarded as an exception. Compare as to the preservation and loss of the semi-vowel the

[1] I cannot help alluding here to an absurd remark in McAlpine's Scotch Gaelic Dictionary under the word "coig"; after giving as a localism a pronunciation like the Manx side by side with what is thought the proper Scotch, it goes on, "but in the Islands of Argyll every word is pronounced just as Adam spoke it."

French "egal," "quand" (kɛ̃), "quatre" (katr), "garde," "garantir"; Italian "eguale," "quando," "quattro," "guardia," "guarantire"; Spanish "egual," "cuando," "cuatro," "guarda." French dialects, besides exhibiting instances where (w) has survived, such as in patois Vosgiens (kwɛt) and (kwat) for French "quatre," and in same patois and, as I remember myself, in Wallon of Namur, (kweer), for French "querir," also furnish examples where (w) has survived to the rejection of, or without the development of, the initial (g), as in patois Vosgiens (wɒd), (wɛr), (wɛɛs), for French "garde," "guere," "guèpe." So we find among the Celtic group Welsh 'p' equates with old Gaelic and still Manx 'qu,' now Scotch and Irish 'c' (k), and Welsh 'gw' initials equate with Gaelic 'f,' Latin 'v' (w), and sometimes with Sanskrit (v) or (w), and that the Romance languages, as compared with the Teutonic, equate 'g' and 'gu' initials with (w), (β), or (v).

In Welsh there seems a sort of peculiar affection between (g) and (w), and between (χ) and (w̥), for without either 'g' or 'ch' (χ), or in comparatively few instances 'c' (k) initially, in the radical or unmutated form of a word, (w) as a semi-vowel consonant seems unknown, but when thus preceded by 'g' is so strong that it occurs as initial non-syllabic compounds with 'l,' 'n,' or 'r,' as in "gwlad," "gwna," "gwres," which become by mutation "wlad," "wna," "wres" with same consonantal (w).

It is very suggestive to compare such changes between Welsh and Gaelic initials with those between the Teutonic forms of cognate origin with Romance 'gu' initials. Leaving out English loan words from Norman or later French, these omit the 'g' and remain only mere (w) in English, and have become (β) or (v) on the Continent, as English "war," "William"; German "wehr" (βeer) or (veer), "Wilhelm" (βilhelm) or (vilhelm). We trace similar voiceless initials in the interrogatives very far back and through many Arian languages, thus: Sanskrit root forms "ka," "ku"; Latin, "quis," "quid," "quo," "quando"; Icelandic, "hverr," "hvaðа," "hvat"; English, "who," "what," "where"; German, "wer," "was," "wo" (βer), (βas), (βo), or (ver), (vas), (vo); Gaelic, "co," "ciod" (kɨt), "cia" (kë); Welsh, "pwy," "pa," "pan"; French, "qui," "que," "quand." The inclusive initial elements are back and lip, both so well preserved in Lowland Scotch forms of blended back and lip—(χʍɒt), (χʍeer), (χʍæn): see Ellis, "English Dialects," p. 688. Similar voiceless initials

are abundant in Welsh, in which, as in the Scotch examples, both elements are open, and so capable of simultaneous or blended utterance, as in "chwaer," "chwech," the first word, it may be noted, retaining the old semi-vowel as in Sanskrit "swasri," German "schwester." Spanish furnishes the same open blended initial in an instance of Latin 'j' having been pulled back, which, together with the habit of stressing the end of a word with consonant terminal, has resulted in turning "Johan-nes" into "Juan" (χʍan).

In the actual 'qu' compounds, whether indigenous, as English "quell," German "quälen" (kβeeln), or of Latin origin, as English "quantity," German "quantität" (kβantiteet), we find English (kw) is German (kβ), as in the other cases English (w) and 'wh' (ʍ) are both German (β) or (v). In Spanish, though the speech forms (w) or (u), as in "bueno," out of words in which this lip sound did not exist in Latin, there seems in other cases a preference for the apparently less distinct (β) to either (u), (w), (v), or (b), and Latin Paulus has become "Pablo" (Paβlo): see "Maître Phonétique," May, 1895, p. 108. The semi-vowel (ɥ) is only known as existing in French, and the connection between it and the vowel (y) is easily observed, as the consonant form is evidently, as recognized by French observers, the remains of the first part of a diphthong which has lost its vowel character through stress falling on the second part, so that the syllable changes from a rising diphthong to semi-vowel consonant plus vowel. We have an excellent example of this change in the word "juillet." There are two distinct pronunciations, (ʒyje) and (ʒɥije). M. Passy recognizes both, and says he thinks the first usual in the north; the second, he says, is southern, see "Maître Phonétique," June, 1893, pp. 86, 87; but from my recollection the second is also the Belgian form. In the first, stress falling on 'u' preserves its full vowel character, and the 'i' is absorbed by the 'll,' which in living French has become (j); in the second, stress has advanced to the 'i,' which is preserved as a vowel before the semi-vowel (j), and the (y) having parted with stress becomes the semi-vowel consonant (ɥ).

As regards (r), Southern English vernacular illustrates its intimate connection with mixed vowels into whose organic position it passes readily by infinitesimal degrees, and these vowels have a tendency to be put back, and accordingly we may note, it is sometimes, though irregularly, used in speech to prevent a hiatus

between vowels, as: "I had no idea(r) of it." The practice having arisen, it is inserted where it seems still more offensive, as: "I saw (r)'im." English and Scotch and American English pronunciation further exhibit the peculiar relationship of (r) to vowels, for, except with the back open vowel as in "far away," other vowels when lengthened take a certain mixed vowel glide between them and (r), as in words like "bearer," "cheery," "fiery," "poorer," "roarer," and an almost similar sound, marked by Sweet, mid mixed wide in "better" (betë) and low mixed narrow in "sir" (sä), absorbs and replaces consonant (r), where no vowel follows, thus: "my better eye" (r) sounded, "my better leg" no (r) sounded. Loosen the consonantal squeeze of this English retracted point (r) and we at once hear this mixed (ë), its border vowel in English. Old-fashioned cultured Edinburgh Scotch using 'r' of different position, the generated glide is different too. Thus, "air" has very much the same sound as in old-fashioned or provincial French, using nearly the same 'r,' only the French is as purely monophthongal as possible, the Scotch using a slight glide I would set down as (ï): thus, French (eer), Scotch (eeïr), English (*eeë*), (*eë*), or (æë), which has a tendency to become (*ea*). American English and Austrian German phonetic writers testify to the same dropping of final (r) into a mixed or back vowel as regards their respective pronunciations, and Americans develop the same 'er' vowel in a short syllable of a word where a vowel follows 'r,' such as "very" (vëri) = ve'r + ri, where we would use the older front vowel. The English habit of prefixing this mixed (ë) approach to (r), when followed by long vowels, occasions their difficulty of pronouncing many foreign words. In Denbighshire Welsh also there seems to me a distinct glide approach to the 'r,' as in "gwir" (gwiïr), contrasting with the Gaelic dialect familiar to me in the cognate word "fior" (fiir).

In Spanish we can note the apparent generation of (r) in "hambre" and "hombre," in the latter probably formed from (n) through an oblique case, so "mna" in Scotch Gaelic is pronounced (mr̃ũ̃), in some Irish dialects still (mn*a*) or (mën*a*).

When we consider the sounds which the semi-vowels change into, and those which change to semi-vowels, in the development of speech, we find the changes occur in two directions—one as guided by the ear for the sake of clearness to a more distinct sound, another as it would seem under an æsthetic sense of harmony or assimilation, by which vowels seem eating into and

pulling down consonants, as it were, as water pulls down solid land on the earth's surface. Moving towards greater clearness, (w), (β), and (ɥ) may become (v) or (b), (j) becomes (ʒ), the compound (dʒ), or even is thrown back and hardened into (g), (r) becomes (l) and (d), and (γ) becomes (g). Under the assimilating tendency semi-vowels become simply absorbed by the adjacent vowels and vanish, but we find many other consonants have become worn down as it were under this tendency to semi-vowels. This is the tendency which has caused the so-called "aspiration" in Gaelic, (b) in Irish Gaelic becoming (w) with "broad" or back vowels, perhaps an original (β) hardening into (v) with "slender" or front vowels; in Scotch Gaelic modified 'b' is in a few instances (β) with front vowels in the western dialects, but generally with all vowels the lip tooth (v), less often (w), or a pure vowel (u), or the lip sound has become completely absorbed in the adjacent vowels. The assimilating power of the vowels in Gaelic is more remarkably illustrated with the other stops, the front vowels pulling down their dental (d) and (t) into palatal (ɟ) and (c), and, when modified or "aspirated," (j) and (ç), and the back vowels pulling "aspirated" 'd' into the back position and, as it were, melting it to (γ), thus: "iodhal" (ĭγal), "modh" (moγ), loan words from Latin "idolum," "modus." Compare the change mentioned occasioned in Spanish by a back vowel making "Johannes" (χuan). Spanish phonetic writers allude to this tendency. But their vowels have not usually such an influence over consonants as to alter their position, but unstop stopped consonants, so their modified dental 'd' becomes (ð). This change is occasioned by a vowel preceding the stop, thus: (orbe), (dom benito), (pruebа), (saβios), (soniðos de), (uso ðe), (antiɣuo): see "Maître Phonétique," 1894, pp. 31, 32; "ausencia," "cautivo," "bautizar," indicate obedience to the same rule. A change of analogous nature is shown in French where Latin 'l' when in contact with 'i' has become (j), through older-fashioned palatal (ʎ), thus: "meilleur" (mejər), "fille" (fij), "famille" (famij). Italian, having rubbed down Latin 'l' to 'i' when part of an initial combination, as in "fiamma," "pieno," "chiammare," indicates its participation in a similar tendency.

There are instances of the modifying power of vowels over consonants to be detected in varieties and dialect forms of English pronunciation. There is to me a well-known drawing-room ladies' English, where 'tt' in "pretty" has been worn down to an

indistinct and voiceless (r̥) as (prëri); and in the street vernacular of Belfast "protestant" becomes (prɔrizsnt), "get out of that" (gărëüë ðat); also there is the Irish English (prethiz)="potatoes." These English vulgarisms follow the old Gaelic custom of modifying, and particularly of turning stopped into open consonants by the influence of adjacent vowels, which their grammarians have termed "aspiration."

Besides this change into semi-vowels of other consonants by the wearing down influence of adjacent vowels, we find semi-vowels have been produced from purer vowel sounds, as I have alluded to before by the shifting of stress. This is very well observed in French, as in "souhait," now, according to M. Passy, in Parisian (swe) monophthongic, but, as I remember, perhaps among very old-fashioned Belgians, (sue) diphthongic or dissyllabic; and in "juillet" (ʒɥije) or (ʒyje), as noticed before; "oui," (wi) in ordinary French and (ɔɔjë) in the Wallon French of Namur. In "Noël" and "poete," according to M. Passy, the 'o' is hovering on the verge of becoming (w)—(nwel), (pwet)—but seems restrained by special influences. We see also that old rising (i) diphthongs, as in "science," "violence," "dieu," in French have allowed the full vowel sound of (i) to become (j). In some Scotch dialects there is a pronunciation (jë divnt)="you dont," indicating (w) or (β) as ending of "do," and the original round vowel, becoming fronted and unrounded, has hardened its termination into (v) in emphatic speech.

Teutonic dialects exhibit some apparent vagaries in the substitution of back stops and palatal or back semi-vowels. Thus, in Dutch, Flemish, and, as I have heard, in the mouth of a Westphalian German, every 'g' is (ɣ), and so strong is the hold of this sound over the articulation, that I remember Belgian Flemings who could use no other in French, making "main gauche" (mæ̃ ɣoʃ). On the other hand, there is the Berlin substitution of (j) for (g), also, as I remember, very prevalent at Aachen, in the well-known phrase (*a*inë jebr*a*tnë j*a*ns mit jrynen jurkën jejesn ist *a*inë jutë j*a*bë jɔtës) "eine gebratene gans mit grünen gurken gegessen ist eine gute gabe Gottes." So Swedish "gæra" (jəra), through an earlier combination with the front stop (ɟjəra), and Lowland Scotch "gar," and English "yellow," and German "gelb." There is an example of (i) becoming (g) probably through (j), and then as pulled back through (ɣ́) in a pronunciation I have heard in the

neighbourhood of Cookstown, Ireland, in the name "Harriette" as (H*aargët*).

All these semi-vowels, like other consonants, have their voiceless as well as their voiced forms. And as vowels are much seldomer voiceless than consonants, these voiceless forms strike the ear as much more consonantal than the voiced forms, and with the exception of the back open voiceless (χ) the semi-vowels, like the divided consonants, 'ls,' and the nasals, are much oftener voiced than voiceless. I need not treat at any length these voiceless forms. The back voiceless (χ) is common in most of the Continental Germanic languages, in Icelandic, in Scotch and Ulster English, in Spanish, in some of the eastern French patois, and, as I have been told by an Italian, also in Tuscan patois. In both branches of the Celtic group it is very common. In Welsh it has the remarkable property of being as an unmutated initial only found as a blended sound with the voiceless (ʍ), but as such is very abundant, examples of which I have given. In Gaelic it is used seemingly to avoid a hiatus between "broad" back or mixed vowels, as (u/kë*χ*en) "uisgeachan," so the voiceless front semi-vowel (ç) is between "narrow" or front vowels, as (niçën) "nithean." This voiceless front is in many languages generated by an adjacent preceding voiceless consonant in contact with a quondam (i) or (e), which, by shifting of stress, has been dried up into (j), and then by assimilation becomes (ç) as, "tiens" (tç̃æ̃), "pierre" (pç*e*r), in French, and "pew" (pçuw), "tune" (tçuwn), in English, and in the latter word becoming (/)—(t/uwn), as it has definitely in "picture" (pikt/ë). In Southern English and French this voiceless semi-vowel seems to have no independent existence, and neither it nor (x) are, except in rare instances, used as an initial in German, but in Scotch and Irish English (h)+(ju) produces a true voiceless front semi-vowel, as in "hue," "human" (çuw), (çuwmën). In Southern English this is generally substituted by the to me recently acquired articulation of (h) preceding (j), as (hjuw), (hjuwmën), unless, which is perhaps commoner, the (h) be dropped altogether, as (juw), (juwmën). In Gaelic this (ç) is common, like (x), as an independent sound in every position. The word "uisge," generally (u/ke), is in Islay, Prof. McKinnon told me, (uçke). Voiceless 'r' (r̥) is like (ç) in most languages, a sound generated by assimilation with a preceding voiceless consonant, in which circumstances it is not so easily recognized as voiceless. In Welsh, Gaelic, and

Icelandic it is still an independent sound, as in ancient Greek. In Gaelic, as an independent sound, it is generated by mutation from 'tr' or 'sr' initials, as "mo shron" (më r̥on), "mo thruaighe" (më r̥uëij). The voiceless 'w' (ʍ) is in English only used as an initial, and common only in the north and in Ireland. In French, like the other voiceless semi-vowels, it occurs only by the assimilating influence of a preceding voiceless consonant, and as such may be used in dialect forms of Spanish and Italian. As a Welsh sound (ʍ) exists only, as I have stated, as part of an initial blended compound with 'ch' (χ), neither sound as an unmutated initial occurring separately. In Gaelic it occurs sparingly only in some dialects of the west, where a breath on-glide may generate it between round vowels and voiceless stops, as "suipear" (suʍpër). The voiceless forms of Mid-German 'w' (ɸ) and of French consonantal 'u' are rarer than the other voiceless semi-vowels. There are no instances of their independent existence in any of the languages which own their voiced forms, but in the local pronunciation of a place-name in Belgium, "Huy" (q̊ij), which I remember to have been pronounced in the neighbourhood with a true voiceless semi-vowel. This (q̊) is freely produced in French and (ɸ) occasionally in German by the assimilating influence of a preceding voiceless consonant. Thus, "puit," "suis," "cuit" in French have a distinctly voiceless (q̊), and the voiceless (β) or (ɸ) is sometimes used in German "z̊wei."

I now sum up my main propositions: that the true semi-vowels in the Romance, Teutonic, and Celtic languages are (w), (β), (q̊), (j), (r), and (γ), because if we try to pass gradually from any consonant to a pure vowel sound, we pass through some one of these forms of consonant or half-consonant half-vowel sound. The forms (w), (j), and (r) are said by Sweet to be the older, as they are still the commoner semi-vowels, the vowels of (w) and (j), viz. (u) and (i), being commoner than the vowels of (β), (q̊), and (γ), viz. (ü), (y), and (ʌ). But I cannot help feeling a strong impression that (γ) is as old as the others.

The history of these semi-vowels shows—

(1) They have been produced as apparent parasites in contact with vowels resembling them. (2) They have been produced by the consonanting of their vowels, or of resembling vowels through stress moving from the changed vowel to a succeeding one. There may be reason to believe that these two steps are often the same in

principle, through an originally simple vowel becoming fractured into a diphthong, and then the first part of this diphthong becoming consonantized through shifting of stress on to the latter part, as "roi" in French and probably in the English 'u' or 'ew' words (ju), (iu), (y). (3) They have been produced through the wearing down of stops or other consonants by the influence of adjacent vowels, similarly to the methods of Gaelic so-called "aspiration." (4) Some appear to be radical sounds as far as we can trace.

Now if I may be permitted to enter into a little speculative phonetic peering into the past, the question we may put ourselves in regard to forms, for instance, like Latin "quinque," Manx "queig," and Gaelic "coig," on the one side, and "pymp," "pente," "pancan," on the other, is, which or what were the parent forms, and so with regard to Welsh "gwir," Gaelic "fior," Latin "verus," Sanskrit "vīr." These also suggest the equated forms Gaelic "bo," Sanskrit "go." Of course we know that Grimm's law equates the Arian consonants amongst the different branches, and that as to some changes to the Gaelic 'c' (k) the early Gaels had the habit of turning loan words like "pascha," "purpur" to "caisg," "corcur." These latter can only be explained by the Gaelic hard breathing with voiceless stops coupled with their temporary disinclination to the voiceless 'p,' which they turned either into 'b,' as Irish "obair" from "opera," or into 'c,' pronounced (kh), and that the hard breathing of the latter they thought a sufficient imitation of what they would otherwise, but for their disinclination thereto, render by a hard-breathed (ph). These Gaelic changes are of a special and only temporary nature, but it is impossible to imagine the descendants of a people using both distinct 'ps' and 'ks' or both 'bs' and 'gs,' changing (p) for (k), (b) for (g), or *vice versâ*; and after studying the development we can trace, and allowing for early writers not distinguishing between stopped and unstopped consonants, is it not legitimate to form the hypothesis of prehistoric semi-vowels blended of lip and tongue back consonantal squeezes in part surviving or reviving in those Scotch, Welsh, Latin, and Romance words, with 'chw' (χʍ), 'gw,' and 'qu' (kw) initials constituting the parent forms from which the later very divergent ones with (p), (k), (b), or (g) have resulted by the process of aiming after distinctness? Thus, if we imagine the parent prehistoric form of the interrogatives to be a kind of interjectional

emphatic whistle, beginning with breath guttural, as (χʍuu), and that of 'bo' and 'go' as an onomatopoeic imitation of the animal's low, but whose framers, unfettered by an alphabetic catalogue of sounds, made it not "moo" after the nursery fashion, but (ɣwuu), we can understand how the present and historic variants could be descended from them.

Addendum.

Critical phonetists might object that there are different varieties of speech sounds which I have classed together, and that there are sounds midway between these semi-vowels, having the same semi-vowel character, which I have not alluded to. Thus, German phonetists deny the identity of German 'w' in "wo," "wer," "was," and Spanish 'b' in "saber," and others might deny the identity of (w) in French "oui" and in English "we." It might also be asserted that there is a sound midway between (j) and (ɣ). To this I would say that those differences in the lip sounds are not incompatible with each set as described coming under the limitations and fulfilling the conditions laid down, so that the differences are immaterial to my propositions, and that of course there is a position of lingual open consonant which is intermediate between palatal and back, but this kind of half-road position is seldom maintained in practice. National peculiarity or influence of adjacent vowels fixes it either as more or less distinct retracted (j) or advanced (ɣ). Thus I remember the late Mr. James Lecky put down for Irish Gaelic "a ghrian" (ë ɟriën) with retracted (j). In Scotch Gaelic it is certainly (ë ɣ́riën) with advanced (ɣ).