(*ee*’j, *oo*’*w*), just considered. ix. Inchoant diphthongs, first *grave,* where the speaker begins too low and corrects him­self, as (*í*i, *ú*u), and secondly *acute,* where he begins with the mouth too open and corrects himself as he proceeds, as (Ǝ'o) ; both are common in English dialects.

8. *Glides from and to Mutes, Post-Aspirates, Sonants.—* The essence of the diphthongal character was the glide, which was independent of the sounds of the first and last elements. These might be absolutely mute, as in (piip, tAAt, kook) peep, taught, coke, in which (p, t, k) are mere positions without sounds. But the results are quite dif­ferent from (ii, aa, *oo*), because while the consonant positions are opened out the vowel is at the same time sounded. Similarly in the reverse order, when final. But here the enclosure of the breath is felt to be uncomfortable, and, if there is no vowel to fall upon, the mouth is opened and a puff of flatus (‘), called the “recoil,” is heard in England, as (piip') peep ! Using then (+) for the gliding sounds, we have (p + ii + p + ') ; but there is no recoil in (p + ii + p + *i* + q) or (p + ii + p b + *oo*’*w*!) peeping, peep-bo ! Various nations'have very different habits in this respect. In Indian languages (p') would be felt as a final post-aspirated mute. So initially in Germany, the (p) position is usually released, not on a vowel with a clear glottid, as in England

and Italy, but on a vowel with a gradual glottid, as (pןii), and hence flatus is heard before the vowel. When this is exaggerated, as (pןhii) or (pHןhii), we have the true Indian post-aspirated mute.

But an attempt to utter the vowel through a mute position may be made before the position is quite opened out, or the vowel may be continued into it after it has been assumed. This gives the English, Italian, and Indian “ sonant,” as in (b*ee*b) babe. The German is not quite the same. Here the glides are (b + *ee* + b), with possibly a voiced recoil (b + *ee* + b + ’), where (’) represents the most amorphous voice. This voiced recoil is strong in French, but seldom heard in English, except in declamation, is regular in modern Indian, and impossible to a German, who says at most (b*ee*bp') or (b*ee*p') ; also Indians and Irish sometimes jerk out their vowel after sonants, as (bH*ee*bH'), producing the sonant post-aspirates. The ancient Indian never ended words in the pause with sonants, post-aspirated mutes, or post-aspirated sonants, but only with simple mutes, and avoided the recoil.

9. *Glides to and from Hisses, Buzzes.—*In the case of a hiss, flatus passes through the consonant position and is continued part of the time during which the vowel position is assumed, but towards the end of that time voice is put on. Hence in (s + ii) see, the glide (+) is partly flated and partly voiced, so that (s) acts in much the same way as a gradual glottid; similarly when final, as (s + ii + s) cease, where the hiss replaces the recoil. But the propor­tion of voice and flatus in the glide may vary. The voice may be put on during the hiss, and then the change takes place in the hiss position. The result, far less clear than a vowel, is a hiss (s), followed without a positional glide by the buzz (z), then an entirely vocal glide, the vowel, and a vocal glide, a buzz, and a hiss, as (sziizs) seize, sees. The initial (sz) is regular in Germany, where no vowel precedes, as *sie sehen* (szii z*ee*’n), they or you see ; and the reverse (zs) is regularly in English seize (siizs) in the pause, and similarly (haavf, briidhth, ruuzhsh, dɟǝdɟshj) halve, breathe, rouge, judge. In the south-west of England Saxon words beginning with s, *f* are pronounced with (z, v) initial, which passes through (sz-, fv-) to (s, f).

10. *Glides to and from Flaps.—*Flaps are consonants where there is a slack organ which flaps with the breath as it passes. The *r* is very varied, but properly voiced, though the flated form occurs. The flap may be made (1) with the lips, as (brh), used in Germany to stop horses ; (2)

with the tip of the direct tongue, (r, r), used in Italy ; with the tip of the reverted tongue, (r), used in the south of Eng­land and in modern (not ancient) Indian, where it is called “ cerebral ” ; (3) with the uvula, (*r*), common in France and north Germany, labialized (*rw*) in Northumberland, and harsher in Greek and Arabic ; (4) with the glottis, (ן), usual in Denmark ; and so on. In the educated south of England the tongue is often raised to the (r) position, but not allowed to flap, and is treated as a buzz (ro).

The above form the *central* flaps ; if the point of the tongue is fixed and the voice escapes by the side it causes minute *lateral* flaps of the tongue. The place of the point of the tongue discriminates the various sounds which differ but slightly—(l), advanced tongue at gums, Continental ; (1), coronal, tongue near the crown of the palate, English ; (l), reverted, in connexion with (r) in south-west England.

Both flaps, especially the latter, are extremely vocal, and the glides from and to them are like those from and to vowels, while they glide readily to and from mutes, sonants, hisses, and buzzes.

11. *Glides to and from Hums, Orinasals.—*For (p, t, k) both nasal or oral passages are cut off, the former by press­ing the uvula against the back of the pharynx. Let this pressure be relaxed so that the nasal passage is opened, the oral passage remaining closed. The voice passes through the nose, forming the three hums (m, n, q). The glide from these to ordinary vowels is the same as from (b, d, g), and the peculiarity consists in the preceding hum and the closing of the nasal passage as the vowel position is assumed. If the nasal passage is left open at all the vowel is “nasalized,” and as it resounds partly in the nose and partly in the mouth it becomes an “orinasal.” Four principal orinasals exist in French, as *an, on, un, vin* (aλ, oλ, œλ, veλ) ; there are more in Portuguese, and many others in the modern Indian languages. The oral vowel is altered in character by nasalization, and it is not possible to assign the oral to the orinasal form precisely. If the oral passage is only slightly open, a “ nasalized tone ” is produced, as in Gaelic, some south German, and American dialects, written as (ai). The hum also may be prolonged, and (’mpaa, ’mbaa, ’ntaa, ’ndaa, ’qkaa, ’qgaa) result. These forms exist in South African languages.

The final hum may be continued like a vowel. If the nose entrance is closed and the voice continued (l*i*m, læm, k*oo*m) become (l*i*mb, læmb, k*oo*mb), which, as the ordinary spelling shows, were probably once pronounced. But not only the nasality, the voice itself may be cut off, and then we have the mere stops (p, t, k), thus (l*i*mp, l*i*nt, l*i*qk), which in the pause have the recoil. Some phonetists consider (m, n, q) to become flated in this case, as (mh, nh, qh). This is no more necessary than to suppose a vowel to be flated before a mute, so that (læp, mæt, hæk) lap, mat, hack should be (l“æp, m“æt, h“æk), a usage unknown.

12. *Palatalization and Labialization.—*When a conso­nant precedes a diphthong of classes iv, v, vi, in art. 7 begin­ning with weak (i, y, u), there is a tendency to take these vowels as nearly as possible simultaneously with the con­sonant, expressed by writing (j, *w*j, *w)* after the consonant. To say (tj) at least two-thirds the length of the tongue from the tip backwards must lie against the palate, for (kj) two- thirds from the root forwards. The first occurs in Hun­garian; the second was very common among older speakers of English before (æ), as (kjænd’l). Both (tj, kj) are apt to develop into (tɟ) ; compare *nature, kirk,* say (neetɐɹ, kjǝǝɹkj), with colloquial modern (n*ee*tɟɐ, tɟǝǝtɟ). Similarly the voiced sounds (dj, gj) become (dj), compare *rig, ridge.* These (tɟ, dɟ) are consonantal diphthongs = (tjshj, djzhj), as in *ch*est, *j*est, and are distinct from the Indian sounds (kɟ, gɟ) W, ∣Γ, which are true mutes, produced by bringing the tongue from