

## Some Scientific Factors of Linguistic Change

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One of our Vice-Chancellors recently said that the first proud duty of a university is to be the trustee of the intellectual and cultural heritage of mankind and to strive for cultural continuity in a world of rapid change.

It falls to linguists to consider the most important means by which our human heritage is shared and communicated—speech. In any study of man as a social being, speech is a central point from which radiate many forces and problems.

In the development of speech there are two basic factors—physiological equipment and the beginnings of social organisation. Sounds are perceived by a rapid rhythmical series of pressures on the ear-drum and speech sounds are produced by the vocal apparatus, flexible membranes in the larynx being capable of vibrating in a column of air whilst other organs form variable resonating cavities.

The origin of sound symbols has been seen in primitive speech symbols used in emotional situations—*O* for fear; *Ah!* for joy; *EE* for pain, and others. Paget, however, with a tongue-gesture theory, violated the time-scale when he identified the *i* (*ee*) sound with the idea of smallness and the *a*, *ɔ* and *u* sounds with largeness or distance.

Our subject holds a challenge—are languages as clearly the product of evolution as is man himself?

At the outset it is necessary to distinguish sound from phoneme and both from their graphic representations. The sound is absolute, the fixed quantity of a physiological and acoustic nature; the phoneme is relative, the result of historical evolution, and may have shadings dependent on the nature of neighbouring sounds (*cf.*, the *k* of *key* and *cool* or the *l* in French *lac* and *peuple*). Again, the vowel element in *bone* is a phoneme probably once sounded *a*; the present pronunciation varying between *ɔu* and *o*.

The story of the Tower of Babel is moral allegory. Many languages are as clearly the product of evolution as is man or any other organism. For about 3000 years, evolution can be seen as the central fact in some recorded languages—wonderful to observe. There are, however, still hundreds of unwritten languages on the globe and even within a comparatively small area there are scores of entirely unrelated languages.

Languages do evolve and change continuously; *e.g.*, Latin lives on in Italian, in essentials just spoken Latin grown older, although, of course, many new words have been borrowed from neighbours. Spanish, Portuguese, French and Roumanian are other sub-divisions of Vulgar Latin. By going farther back, we see that Latin, Greek, Celtic, Germanic and Slavic were all, in say 1500 B.C., blood-brothers with a common parent-language, the Indo-European, which itself soon divided into two main groups, the *centum*- and *satem*-languages, according as the Proto-Indo-European guttural K is represented by a guttural or by a sibilant. Indo-European sub-groups are Indo-Aryan, Armenian, Hellenic, Illyrian, Italian, Celtic, Germanic and Letto-Slavonic.

There are more families of languages, those to which, *e.g.*, belong Chinese, Turkish and Eskimo. Four main types of linguistic families are known. First, there are the isolating (tone) languages, mainly monosyllabic, with no inflections or parts of speech. Colloquial Chinese has only about 500 different root words, monosyllables; but by intoning each syllable differently, the Chinese achieve a vocabulary of over 2000 words.

A second family is composed of agglutinative languages; among them are Turkish, Finnish and Magyar. Their basic principle is the use of affixes, before and behind, in themselves not meaningless and incapable of standing alone as, *e.g.*, in *be-fog(g)-ed*, but themselves individual words capable of being glued together into larger ones as in our *longshoreman*.

A third major group consists of inflectional or amalgamating languages, in which words are constructed by the addition (to the root) of one or more prefixes and/or of one or more suffixes, such additions not being themselves recognisable words, *e.g.*, *re-cooked*. Moreover, prefix, root or suffix, one or more may be internally modified, *e.g.*, French *apporter*, with assimilation of the prefix *ad-*.

The largest of all language families, the Indo-European, is inflectional and its speakers embrace about one-third of mankind. Latin, English and Hebrew are examples of widely differing sub-types; thus Latin is more inflectional and less analytical than modern English which expresses many syntactical relations by independent words. Apart from the Indo-European, the other chief families of this type are the Semitic, like Hebrew and Arabic, and the Hamitic, *e.g.*, Egyptian.

The fourth type of language family is polysynthetic or holophrastic (= phrase-as-a-whole) in which sentence or connected thought becomes one complex word and the most significant sounds of each ingredient are welded into a compact mass. This technique is evident in native American languages, *e.g.*, in Cherokee, where *nadholinin* (bring us the boat) is made up from the basic *naten* (bring); *amokhol* (boat) and *nin* (us).

Few languages, however, belong exclusively to one type, and some partake of the salient features of two or more types. Australian aboriginal tongues are all complex. Basque is a mixture of agglutination and polysynthesis. But European languages, with the major exceptions of Basque, Finnish and Hungarian, are descended from Indo-European, perhaps first spoken along the Danube. Its dialectal forms spread over Europe and much of Asia. Change may have operated swiftly and offshoots of the mother-tongue rapidly become mutually unintelligible.

The original Indo-Europeans left no written records; but by deduction from observed facts of present-day and older recorded languages, philologists have re-created Indo-European. Students of Sanskrit (= 'perfectly written') a very old Indian language, discovered close correspondences in vocabulary and grammar between Sanskrit on the one hand and Greek and Latin on the other. When the Germanic and Slavonic tongues were also compared, the resemblances were found to be too consistent to be accidental and the farther back one went the closer became the resemblances. So sure were the lines of convergence, that from examining a word or structure in one language, a corresponding word, form or construction could often be predicted and found in another language of the family. The small differences in one Indo-European language from another are apparent from the following equivalents and resulted from discovered spontaneous changes or 'laws' which often have practical value in determining the meaning of words:—

GREEK	LATIN	ENGLISH	FRENCH	GERMAN
frater	frater	brother	frère	Bruder
treis	tres	three	trois	drei
pod	ped	foot	piéd	Fuss

The difference between, say, *pod* and *foot* ( $p > f$ ) is only apparently great and was subject to the consonantal change known as Grimm's Law. Such laws are statements of accredited changes classified on the basis of time and spatial relationships and admit of no exceptions.

The story of the original Indo-Europeans, who probably called themselves *Wiros* (Lat. *vires*) may be deduced with reasonable certainty. Their language was highly inflectional and their nature urged them to expansion. In each of the languages descended from Indo-European there occur words obviously identical for certain objects and actions—hence it is deduced that the parent language knew those things, animals or actions, *e.g.*, wolves. The horse, ox, sheep, pig, hound, wheeled wagons, yokes, mead, copper and barley are other examples. They had words for water-borne vessels, the sea or a lake, and for the normal family relationships. Their religion was polytheistic and they migrated in waves. After leaving the mother-nation, each group gradually developed dialectal peculiarities like Celtic, Teutonic and Italic, which in time again sub-divided.

Divergence was accelerated by lack of intercourse, absorption in foreign tribes and the absence of records to act as brakes on unrestricted changes. Recently in Turkestan, a dead city of a long-forgotten people was unearthed. Tablets with writings were found and read easily; the language of this former Asiatic race was in essentials almost identical with the present-day Irish language. The linguistic effects of invasion can of course be illustrated from the history of England. Now the spread of literacy, like wireless, does restrain the growth of dialects. English itself has during the last 300 years split only into a few main new forms, like Standard English, Pidgin and American.

There is no necessary correlation of race and language. Many European languages are fast disappearing through the competition of stronger neighbours. Cornish has gone; Gaelic, Breton and Welsh are dwindling; the German Wends (Slavs) have, I think, lost their language. In Ireland, Erse has been artificially revived; in the U.S.S.R., encouragement is given to languages like Ukrainian and the Caucasian tongues. The ups-and-downs of a language do not always reflect changes in racial groupings; thus the racially identical negroes of the United States and of Haiti speak English and French as their respective native tongues. The ancient Iberian race survives in the stock of English, French and Spanish peoples; but only Basque remains as an Iberian language.

As a rule, national unity of fusing races has been most fully achieved where linguistic minorities have *not* persisted. In Great Britain the price of unity has been the surrender of private idiom; we may perhaps note a contrast with India. In the sphere of government and in *esprit de corps*, a language barrier is an obstacle to fraternisation and to cultural activities, as in literature which, in a broad sense, is the vehicle of tradition. Henry Ford expressed the opinion that Europe needs about fifty more dead languages.

Linguistic and cultural fusion has often been an easy process. Caesar conquered Gaul and the country was romanised within a few centuries; a civilisation which absorbed the Frankish invaders. Celtic and Frankish contributions to Romance speech were small; but the racial mixture of the French remained with later Northman additions. Celts and Franks were intelligent mixers.

Chinese is an isolating language; Japanese, mainly agglutinative, is more complex. Such a linguistic gulf made Japan's 'Co-prosperity Policy' rather unreal.

There are linguistic oddities and antagonisms. In Norway, educated people prefer a form of Danish to Norwegian. The Prussians were Slavonic invaders speaking Old Prussian, having affinities with Russian; a heavy blow to Nazi pride. There is Afrikaans in South Africa as a rival to English; but speakers of both

languages are outnumbered by natives having Bantu dialects. Franco in Spain suppressed linguistic minorities. The Roman rule in many countries was, however, tolerant of indigenous cultures; Rome was prepared to adapt the native material to the peaceful, prosperous ends of government: especially in France, Italy, Roumania and Spain. Latin became the international language of churchmen, scientists and scholars. Switzerland is nationally fused, with four languages; external pressure has operated here in solving minority problems. But in spite of Palestine's central position on the old trade routes, the Jews preserved their language by internal cohesion.

So far, it has been implied that culture and language are casually related. By culture we mean the set of ideas, and the activities based on ideas, shared by a given group of human beings and transmitted. Thus the culture of Australia is in essentials British.—Now does culture reflect a language or does language reflect a culture, or is there no casual connection between them?

Those taking the third view point out that great civilisations have been developed by the Chinese, speaking an isolating tongue, by the Aztecs of Mexico (holophrastic), the Arabs of the great age of Islam (part-inflectional), and by the ancient Greeks (highly inflectional). Yet all these cultures differ and there is no evidence to show that Greek culture could have developed in Mexico or Mexican culture in Greece.

It is difficult to say to what extent a culture depends on a language; but a culture that makes much of abstract ideas must have a language in which these are adequately voiced. This is possible in all four language types, *e.g.*, Chinese renders the idea 'Man's nature is fundamentally noble' as 'man root good'. Yet some people may feel that an inflectional language is the best vehicle for debating subjects like metaphysics or mathematics; however, analytical languages like English and Chinese do permit a high level of abstraction.

What appears less controversial is that a culture is expressed in perfect naturalness only in the language of those who have that culture. The Romans, *e.g.*, were never quite at home with Greek philosophical ideas; their genius was more practical.

Again, there is a difference in the expression in three idioms of the same basic idea: Liberté, égalité, fraternité; Government of the people, by the people, for the people; Democracy. They are translations, each of the other; but are there no differences?

The culture of Australians is easily expressed in English; but the native tongues of Australia have often no possible means of translating many of our ideas. It would be almost impossible for the Old School Tie to be in the least real to some tribes. Such phrases (and all languages have many similar emotional examples) cannot be translated without adding to or subtracting from the meaning. The culture of another group is acquired only with difficulty by those to whom that language remains foreign.

It was once held that primitive peoples had a very small vocabulary. Facts do not allow such a generalisation. Max Müller stated that an illiterate farm-labourer of the last century used scarcely more than 300 words for all purposes; but observers disagreed about what constitutes a separate word. Now the *Oxford English Dictionary*, as my colleague, Mr. Harwood, pointed out, has about 240,000 main entries; but the normal adult speaker probably knows about 30,000 words and uses only some 10,000. A child of 3 to 4 commonly has a vocabulary of 600-700 words. Shakespeare used 24,000 words; the Authorised Version only 7200. Zulu has 1700 words; Dakota (American Indian) 19,000 and Navaho 11,000. Hence size of vocabulary cannot be considered to be a reliable index of cultural potentiality. Moreover, from a comparative examination of literatures, it is not always possible

to say that one language is, as a linguistic instrument, more adaptable to literature than is another.—Regarding form, there is no mechanical reason why any speech adequate for human intercourse cannot also be adequate to the recording of that intercourse. Literature is often based on a small vocabulary and the judgment of the form of expression is dependent on fashions in taste. In any case, poetry exists prior to writing.

Language, culture and literature seem to depend on a similar set of human faculties and on biological environment. The main instrument for the transmission of a culture is language, man's exclusive property.

By natural, gradual changes Indo-European has produced languages so far apart as English and Irish. Very few people in that time were aware of change. Each of us, however unconscious of the fact, shares in the process. We do not usually look back to our early years when we spoke differently from now. Phoneticians detect minute variations which in a short time produce a varying pronunciation. Change in speech is most rapid in the youngest of co-existing generations and most new fashions in words remain unnoticed by elders. Shakespeare's grammar was much like ours; but his pronunciation would be somewhat unintelligible to modern ears, unless, as my colleague, Mr. Harwood, reminded me, the diphthongisation of the Old English long vowels had been completed in Shakespeare's day and dialect.

One offshoot of the Indo-European race spoke Germanic which itself split into the West and East Germanic dialects. The chief sub-groups of West Germanic were Old English and Old High German. The relationship is still apparent.

Differences and resemblances can be traced, defined and to some extent explained. The words *heart* and *Herz* will serve in illustration. The initial *h* in both is known to come from Indo-European *kh*, an aspirated stop, which early changed to the spirant *χ* (chi) later simplified to the aspirate *h*. Latin and its descendant French preserved the palatal stop *k*, as in L. *charta* and Fr. *carte*, from which we get *card*, a late borrowing with changed meaning. But the direct offspring, resulting from the first sound-shift, of *charta* in the two Germanic languages is *heart* and *Herz*, as are *hound* and *Hund* from L. *canis*. Other early sound-shifts were I.-E. *bh*, *dh*, *gh* > Germanic *b*, *d*, *g*; *p* (*h*) > *f*; *th* > *t*; and *b* > *p*, *d* > *t*, *g* > *k*. Hence we expect the *p* of L. *pater* to become the *f* of *father*, and the *d* of Greek *deka* and L. *decem* to be the *t* of *ten*. Even the apparent exceptions of the I.-E. sound-shifts have been codified as Verner's Law and shown to depend on 'accent protection'; or to be later borrowings from Latin and Greek. Close linguistic relationship is again shown by *brother*, once identical with I.-E. *bhrátar* (L. *frater*); but early Germanic in certain circumstances changed original *t* to *th*, and original *bh* to *b*, whilst Latin preserved *t*, and changed the 'graphy' *bh* to *f*.—The difference in accentuation between *posséss* and *póssible*, *c.g.*, is explicable only in the light of the shifting I.-E. system of stress.

Some apparent violations of phonetic correspondences have been found to depend on secondary factors like dissimilation, the time element and, above all, as Verner discovered, stress. Thus we would expect for I.-E. *t* as A.S. *θ* and Ge. *d* (*cf.*, the ancestry of *three*); but contrast the cognates of Sanskrit *bhrátar* with those of *pítár*; in the latter case, only E. *father* is regular. When the chief accent immediately preceded the unvoiced stop, it changed to a spirant; when the main stress followed, a voiced sound resulted; *cf.*, *póssible* and *posséss*. Verner's law helps us to determine the position of the accent in I.-E. words, as variable as in Greek. Germanic stressed the root syllable. Variations of stress and pitch are factors of national speech melodies and have, as in the work of Armstrong and

Constenoble for French, revealed a wide range of significant patterns. Free accentuation for emphasis, or for emotional and oratorical purposes, is a recognised factor in speech.

In the early centuries of our era, further consonantal changes, grouped as the second sound-shift, occurred. These coincided with the expansion South and South-East of the Germanic peoples who split into Low and High German. English and Dutch remained on the older stage and successfully resisted, *e.g.*, the High German shifts of the stops, *p*, *t*, *k* to the affricates (stop + spirant) *pf*, *ts* (*z*), *k*  $\chi$  (*ch*); or, after a short vowel, to the aspirants *f*, *z* (*s*), *h* (*ch*) (O.E. *ic* > *ich*). Later often *d* > *t* and *p* (*th*) > *d*. Thus the German shifts of *p* to *f* (*f*) and of *t* to *z* in *ship*, *Schiff* and *heart*, *Herz* are regular second sound-shifts.

Linguistics aims at defining universal categories of speech phenomena and the factors on which these depend. But there are also non-universal categories and somewhat unsystematic diachronic (+ synchronistic) speech phenomena which are in danger of being overlooked by tabulators of sound-shifts, *e.g.*, some in Armenian and in modern Danish (*cf.*, 'Lingua', I, 1). Yet the general principle is clear—'La linguistique aboutit à des formules du type "si . . . toujours et partout", énonçant entre les faits des rapports conditionnellement nécessaires, donc à des lois semblables à celles des sciences exactes + la tâche prochaine . . . sera d'établir un aussi grand nombre de ces lois'.—And these 'laws' are often laws of 'passage', *e.g.*, the Fr. change between the 5th and 8th centuries of *c* (*k*) + *a* > *tch*, which later > *ch*. The mark of consonantal change is the reversal of the positive and negative terms of the original opposition, a reversal due to an enlargement or diminution of the regions where they are in use. Danish *b*, *d*, *g* have recently lost their voice and, after *s* especially, *p*, *t*, *k* are softened (*skrive* > *sgrive*), a reversal of two series of stops which sheds light on some earlier changes. Further, physiological and social factors are insufficient to account for such changes, but other sound-shifts are illuminating. In French, the tendency to approximate *brun* to *brin* and to make *joli* > *æli* might be noted here.

From the Roman invasion to the Norman conquest, Celts, Romans, Angles, Saxons, Jutes, Danes and Norman-French left linguistic traces in Britain. English has changed greatly; its vocabulary has been enriched by borrowings. A language meets changing conditions and varying needs. The wear and tear to which as an instrument it is subject implies change and addition in vocabulary, together with shifting meanings and functions. . By the 13th century, however, our language begins to look modern:—

Sumer is i-cumen in;

Lhude sing, cucu . . .

On passing to Chaucer, we notice that many new foreign, chiefly Latin and French, words have crept in, like April, March, pierce, virtue, engender, flower, pilgrimage and strange. Most end-syllables and cumbersome inflexions have dropped off since; but foreign borrowing has increased. Grammar has simplified, yet the old basic vocabulary has remained and we are speakers or writers of good English in our sincerest moments when we say—'I love you dearly' rather than 'I entertain for you a profound affection'.

Languages do change without interference from outside, yet external factors periodically play their part. The coming of the Danes helped to fret away the cumbersome Old English endings and many Danish names were adopted. The Normans in England used their Northern French as the official tongue for about two centuries. The bulk of the English people used only such French words as became needful in their dealings with the master-class. The opening chapter of

Scott's *Ivanhoe* sheds light on that linguistic position until in the end the Normans, like the Danes, adopted English. Sometimes the native word was excluded by the newcomer, e.g., *despair* ousted the *wanhope*; or else the French established itself beside the English in such pairs as *royal* and *kingly*; or the Danish *hale* by the side of *whole*. Such neologisms built up an astoundingly large vocabulary of near-synonyms making possible delicate shades of meaning. Once the path was blazed the word-invasion grew and it has never ceased. The scientist, needing a new term, has had recourse to dog-Latin or Greek or French forms: instead of *far-talker*, he chose *telephone*.

In addition to such broad movements as growth in vocabulary and simplification of grammar, common to many languages, it is clear that everywhere there persists a movement towards standard speech, arising from the medley of dialects. In France *le Francien*, the speech of Paris and its environment, gradually prevailed; standard English emerged in the fifteenth century. In centres of government and trade or learning, such as Paris, London and Oxford, the mixing of speakers of various dialects produced a blend which continues to spread; printing, popular education, the press and broadcasting are forces acting in the direction of making standard speech less and less a class dialect. By 1660, both English and French *grammar* were practically standardised: it was the century of the Authorised Version and of the French Academy, as well as an age of political centralisation. Many once purely dialectal forms went over into the standard language: French, e.g., absorbed the Provençal *amour*, the Eastern dialectal *oie*, for *oue*, the Picard *caboche* ('nut'), the Norman *benêt*, and Breton *crevette*; English absorbed some Norman-Picard-French forms with the initial unshifted *ka* (*ca*) and *ga*, like *carpenter* and *garden*, as distinct from Central *charpentier* and *jardin*. Both English and French took *dupe* from argot (thieves' slang). To *poll*, go to the *poll* and *poll*-(tax) came from twelfth-century Picard-French *pules* (folk, people). Contrariwise, the Devon and Cornish *youm* (you am = you're) has gone into nautical French in the sense of a British sailor or any Briton.

Often the treatment of borrowed words is a challenge, for one must take into account pronunciation at the time of borrowing, manner of transmission and the peregrinations of the newcomer. Sounds foreign to a language are rendered by near equivalents; thus French importations like *bifteck*, *rosbif*, *paquebot*, *redingote* (< riding-coat), *beaucuit* (< buckwheat), *contredanse* (< country-dance) and *le fifocloque* are phonetically naturalised and to some extent associated with known words. Modern French with its tense 'dégagé' final vowels, reduced diphthongs. Popular etymology is ever active, cf., E. *grog* (< the *gros grain* clothing worn by Admiral Vernon); Fr. *le jeu de l'âne sale* (game of Aunt Sally); Ge. *Mauhwurf* (< *moltwerfe* = earth-thrower; cf., *mole* and *mould*).

One-word histories often reveal startling changes in meaning. Latin *caput* (head) became Italian *capo*, later extended to *cappochia* which gives French *caboche* (slang = 'nut') and this was borrowed in Middle English and became *cabbage*. A *milliner* was a *Milan-er* when Milan was the centre of fashion.

Some words are based on personal names perpetuating the fame of men and women who never expected to be immortalised. The simple *derrick* (type of crane) is so named after Alan Derrick, a flourishing hangman of Queen Elizabeth's time who plied his trade on Tyburn. The fourth Earl of Sandwich solved the problem of solid refreshment during his long hours at Brook's gaming tables by ordering slices of meat to be served between rounds of toast; so he christened the sandwich. In 1880, Parnell advocated social ex-communication for those who dealt in Irish estate; his first victim was a Captain Boycott; he gave a word to many languages.

*Bloomers* are a tribute to an American lady, Mrs. Bloomer, who introduced a trouser-like garment, designed to reach below the ankles, in the interest of modesty. The word *doily* commemorates the business acumen of Edward Doyley, a mercer in the Strand. His speciality was 'dainty and cunning table-mats', chiefly imported from France, and the public honoured them with his name. The term *martinet* resulted from the stern discipline of a General Martinet of Louis XVI's reign.

In 1759, France was finding difficulty in balancing her budget. Following the reckless Scot, John Law, a new Controller-General, Etienne de Silhouette, instead of attacking the extravagance of Court and nobles, indulged merely in a few petty economies. Among other measures, he decided that portraits in oils were too expensive, and he invented a new, cheap method of portraiture. The fashion was a passing craze; but a word was added to many languages—the *silhouette*.

Such linguistic additions are obvious; but what further factors cause changes in pronunciation? These can usually be traced and explained; but a knowledge of phonetics and of the vocal organs is necessary. First, the chances of repeating or imitating at will *exactly* any sound are small indeed; there is Imperfect Auditional Imitation.—The tongue and lips alone are fairly bulky and their movement cannot be governed to a hair's breath. We can, however, aim at a given position of the organs, but the phonetician is sure of the exact target; its area is easily misplaced. In individuals and communities, many misses gradually alter our vague notion of the target and in a generation or two this cumulative displacement produces marked changes. Yet it is likely that laziness, economy of effort in speech, is the greatest factor of such changes. An example; how do many people tend to say *git* for *get*? Because *i* is made further forward in the mouth than *e*, and in passing from the back position for palatal *g* to the front one for the dental *t*, the tongue tends to over-run the *e* position in anticipation of the *t*. So the back *l* in Old French *chevals* was vocalised by the back vowel *a* to form the *o* sound of (*chev*) *aux*. There is much assimilation in spoken languages. Sometimes, however, dissimilation operates; the desire to avoid too close repetition of a sound, as in French *orphelin* (< Vulgar Latin *orfaniinu*).

The results of imperfect auditional imitation and of economy of effort are familiar. These and other factors, like new contacts or geographical isolation, are vital in the attempt to rationalise speech changes.

It is therefore pertinent to analyse some recognised phonological features in the light of such factors.—Can we, *e.g.*, apply the *lex inertiae* to the common processes of monophthongisation and diphthongisation, vowel mutation and gradation, glide sounds, assimilation and dissimilation, palatalisation and metathesis?

Such changes are due mainly to a speaker's normal use of the minimum of energy needed to convey meaning; they are facilitating devices.—What of diphthongisation from this point of view?—In English, both it and monophthongisation are active tendencies, if unconscious operations (*cf.*, the pronunciations of *game*). Acoustically, vowel qualities depend on varying combinations of overtones with the fundamental note, modified by the shape of the resonant cavity which itself may be influenced by a neighbouring sound. So the change to a 'darkened' vowel in *was* is due to the bilabial consonant, whilst 'open' French vowels may result from the nature of the following consonant, just as *jali* for *joli* exemplifies mutation or palatalisation under the influence of the final *i*.

A diphthong is two vowels of differing sonority, one merging into a closer one. The diphthongisation of long vowels (*mīn* > *mine*) in which stress may be a factor, has physical and psychological causes. It is difficult to keep our speech organs



in one position for a long sound without our thoughts running ahead to the next and we are apt to introduce qualitative variations in order to produce an easy rhythmical curve.

Again, a new vowel may result from the vocalisation of a consonant, or a glide may develop between vowel and consonant (dial. *miulk*). Vulgar Latin reduced old diphthongs while it developed new ones (*audire* > *odire* > *oire* > *oyer* > *ouir*). Whereas English had passed through cycles of diphthongisation and monophthongisation, French is now stable in this respect (*aqua* > *eve* >  $\epsilon$  *a U* >  $\epsilon$  *U* >  $\epsilon$  *o* > *o*). Reduction seems to be gaining ground in English (cf., *game* >  $\text{g}\epsilon\text{m}$ ; *tower* > *t a*). These are economies of speech. Dialect geography has delimited many variations.

Assimilation and dissimilation are also speech facilitations or adjustments. Regressive assimilation is heard in *blaegb*  $\text{ð} :d$  and Fr. *chambre* (< *camera* > *tchāmr* > *shā:br*) > *tjāmr* > *fā:br* where the velum was lowered for *m* and rose to *r* before the lips left the *m* position and the release of the lips produced the *b* glide. Dissimilation avoids monotony (Fr. *marbre*, E. *marble*; L. *flebilis*, Fr. *faible*). In V.L., the prosthetic *e* (*i*) evolved as a glide before *s* + consonant whenever the preceding word ended in a consonant (*scola* > *iscola* > *escole* > *école*). A somewhat sporadic speech facilitation is termed metathesis, the interchange of phonemes within a word (L. *parabola* > Spanish *palabra*).

Palatalisation is an assimilative change caused by a neighbouring front sound like *yod*. The articulation is modified by pressing the tongue upward against the hard palate (Fr. *fille*, *enseigne*). French evolved a palatalised *Kj* all the way to an *s* (V.L. *\*cjelo* > *ciel*). Norman and Picard dialects, however, resisted the palatalisation of *Ka* and *ga* to *ch* *f* and *ʒ*, and those dialects gave English forms like *castle*, *garden*. A front vowel can palatalise various neighbouring sounds (*rubēus* > *rouge*). Vocalisation of a consonant between vowels is another type of assimilation (L. *vita* > *vida* > *vitha* > *vie*).

—What of the vowel mutation termed *Umlaut*, and *Ablaut* or vowel gradation?

English, as distinct from German, has few surviving *Umlaut* forms (*mouse*, *mice*). These are vowel assimilations (Ge. *Haus*, *Häuser* < *hūsir*) by which a back vowel is approximated to a following front vowel by an anticipatory tongue movement, another speech facilitation.

The Indo-European vowel change known as gradation is preserved, e.g., in the root forms of 66 English strong verbs and in other Germanic languages. The desire for uniformity is apparent in the increased weak conjugation and in a child's analogical formation like *telled* for strong-weak *told*.

Gray showed that qualitative vowel gradations first concerned the alternation of *e* and *o* (Greek *lēgo*, *lógos*) the former originally unaccented (L. *tego*, *toga*). Such qualitative alternation was most likely due to stress or its absence and soon acquired useful differences of aspect, the *e* grade being imperfective and that with *o* perfective. I know of no other explanation, although in some languages, like O. Persian, *Ablaut* was perhaps due to the same cause as *Umlaut*. The origin of the weak verbal dental endings is seen in early forms like O.E. *andswerian* + *dyde* > *answerede*. In Romance languages, stress and rhythm gave vowel variations of the *viens*, *venons* type.

In preserving speech forms and syntactical usage, the written language is of course a powerful stabilising factor. I can say little here of grammatical change or of the vital rôle of analogy in speech and writing, so well treated by Bloomfield. But it is indubitable that the ear, rather than the eye, is most concerned in speech changes.

In semantic development, the fertilising factor of metaphor and other figures of speech is apparent. Secondary meanings grow out of primary significant forms and vastly increase their range (*cf.*, the extensive idiomatic uses of *foot* and *hand*).

Sound-change is sometimes more easily traced than change in meaning. Various factors, including aural or visual analogy, and sometimes pure chance, may be involved in semantic change. One element may predominate in a name which is then restricted to that element, *e.g.*, *deer* once meant any animal (= German *Tier*). Or a secondary meaning displaces a primary; *villain* originally meant *serf*. Euphemism also brings changes, as when *stomach* substitutes for *belly*. Lack of understanding and the desire for emphasis produce other semantic developments, *e.g.*, 'awfully pretty'.

Word-shortening accounts for *mob* (< Latin *vulgus mobile*, fickle crowd); *cab* (riolet); *miss* (tress); (hi) *story*; French *un vapour* (< *bateau à vapeur*), etc. Moreover, in rapid speech, words are run together to form sense breath groups; a telescopic process. Yet it seems likely that changes in meaning, sound and grammatical form, will be slowed down by universal education and radio; such factors tend to set up widespread standards gradually ousting dialects, at any rate in the regional sense; yet with modern transport and population-changes, occupational and group idioms persist.

One source of dialect is the influence of migrants, as in the Northern dialects of England which owed much to Danish infusion; but dialects may develop in communities free from foreign intermixture. Phonetic aberrations of an individual due to a speech defect, may spread, as may the vocabulary of a regional, social or occupational group with wide internal intercourse in countries having no physical barriers. There is, however, the tendency for the norm to assert itself continually.

All things flow. This then holds true of grammar. Like the French Academy in its dictionary, the linguist records and analyses observed, heard facts; *on dit* . . . He states the changes determining fashion; he does not legislate for the future. Grammatical rules are relative; once *him* was only a dative case which regularly gave the dialectal or slang '*un*'. Fetishes like the rule that a preposition should never be used to end a sentence with and the ban on *all* split infinitives imply a worship of dead ghosts. In spite of the pedants, 'he *dared* not go' has ousted *durst* and there seems no good reason why the gardener should not cut his *gladioluses* and catch his *buses*.

Commonsense gives us little leave to legislate: our function is to record observed facts. Perhaps a safe rule is found in the tag:—

'Be not the first by whom the new is tried,

Nor yet the last to cast the old aside'.

Spelling is in some languages outrageous. Reformers are aghast to see that *fish* could, if we adopt the spelling of the *f*, *i*, and *sh* sounds in *enough*, *women* and *nation* respectively, be written *ghoti*. One letter may stand for more than one sound; one sound may be differently represented; there are silent letters; one sound is represented by two letters, and two or more sounds are rendered by one letter.—But would spelling reform on a phonetic basis result in economy of effort in reading? American practice has moved slightly in this direction and the International Phonetic Association invented an alphabet having an unvarying single sign for each sound and it is used by scientific linguists everywhere for recording. Only by such an alphabet can the differing pronunciations of identical words be accurately transcribed (*cf.*, D. Jones's *English Pronouncing Dictionary*). New evolving sounds are given new symbols. Admittedly, phonetic spelling would involve a break with sentimental traditions and the practical difficulties of its

*full* adoption appear almost insurmountable. But any alphabet is more or less an invention. Modern language teaching begins with sounds and transcribes them in the symbols of the International Phonetic Association, *e.g.*, the French pure vowel *o* is so written and only later are its orthodox 'graphies' *o*, *au*, *eau*, *ot*, etc., discovered by the learner. This is an easy process.

Speech is a motor activity of tongue, mouth and throat; our speech-movements are controlled from the appropriate motor centres of the cortex, although these are not as clearly defined as the visual, auditory, motor and olfactory centres on the brain. Language is not, like eating and walking, an inherited biological activity; it is acquired. Eliminate society and there is no speech; change the society and you change a child's speech. Instinctive groans and cries are not speech.

To the psychologist, speech is primarily an auditory function. Communication by gesture or writing is a substitute for the direct communication of sound-groups to the auditory receiving apparatus. Only seldom does writing or spelling affect speech, as, *e.g.*, when the *h* sound came back into *hotel*, or when Americans say *schedule* (? on the analogy of *scheme*).

The nervous system is normally adequate to produce changes in speech: the neurones of the cortex make possible almost unlimited patternings and combinations or association paths. The act of talking involves at least five brain tracts; but the product of this process and ever-shifting adjusting network must be mentally associated with some element of experience. This is the meaning, agreeing with an identical association in other minds. Words become symbols of concepts.

The problem as to whether thought is dependent on speech has often been raised. Some investigators hold that thought is impossible except on the substratum of words. Yet words, although not consciously framed or spoken, may exist as mental processes without vocal expression. Another school holds that thought deals in images—remnants of sensations—and *may* then be translated into language. Pillsbury compromised: thought might be of both origins. Thus thought in images is probable in musical composition; but thought is based on words when the subject-matter is abstract. Language is an instrument put to use on both the lower and the conceptual planes—the instrument makes possible the product and this in turn refines the instrument. The growth of speech is, however, generally dependent on the development of thought. Experiment and introspection may solve the problem of 'inner speech'.

In our discussion on linguistic changes, the vitalistic theory of evolution has been implied; a theory holding that evolution is a process whereby the life-force of the universe, immanent in all matter, fulfils itself purposefully in new patternings. Whilst the vitalist does not suggest that there are no scientific laws, such a vital principle is opposed to the mechanistic theory that evolution is due to unchanging scientific laws which are *all* physical. Even on the plane of plant life, a degree of individuality and freedom appears. In animal life there emerges a greater power of self-locomotion, as well as the phenomena of mind and purposive if inarticulate language, but with not much conventional meaning. Yet an African Bushman's child can by education reach a standard of understanding for abstractions and time and space relations impossible to the higher apes. Man can by word-symbols differentiate the facts of the physical world.

—How shall we then conceive the emergence of language and what were its original features? These are questions under consideration, involving the monogenesis or the polygenesis of languages. Investigation is busy here.

The *bow-wow* theory of animal imitation cannot account for most verbs, the prepositions and nouns symbolising noiseless objects; moreover, it assumes that language originally had our word-units. These objections are valid also against the interjectional (*pooh-pooh*) theory that all speech arose from emotional cries of pain, pleasure and wonder. But we have outgrown the *wacko!* stage. Nor did the *ding-dong* ('ringing sound') theory hold; the sounds of external nature are too limited to serve as a basis. On the other hand, the *ye-he-ho!* theory argues that bodily activities call muscular tensions into play, some of which affect chest, throat and mouth, and produce, by intake and expulsion of breath, a sound characterising the particular bodily activity—say *heave*, *haul* and *yum yum*. Yet only a very small fraction of speech can thus be accounted for. There is also a kernel of truth in Paget's *tongue-gesture* theory relying on our habit of moving the tongue or lips in sympathy with movements or ideas to which attention is directed. In the mute gesture-language of the Amerindians the tongue is used for positional and spatial reference. Such tongue-and-lip movements during the expulsion of breath produce sounds typical of each movement. Thus the raising of the tongue-tip to the roof of the mouth produces *al*, *oll*, or *ull* sounds, in some languages associated with height, *e.g.*, Latin *alt-*; *Alps*, *Atlas*, *Urals*, *Nepal*, etc. Many of Paget's examples are over-fanciful, and his theory cannot be held to reveal the whole truth.

Scientific investigation has here followed three main lines: animal 'speech'; child-speech; and the study of extant linguistic records going back nearly 4000 years, together with the examination of the speech of existing primitive peoples. In spite of the ability of 'talking' birds, nothing of a helpful nature has been elicited. The gap between primitive human speech and the sounds of the higher animals defeats rational analysis.

An Indian prince once isolated some infants for several years and kept them from contact with outside speech, his aim being to discover the natural language of man. On examining the children he found that they made uncouth random noises. Our own children are, however, not allowed to repeat the slow processes of linguistic evolution; from the outset a highly evolved language is forced on the infant. By repetition and association, adults form the babe's scarcely determinable inarticulations in conformity with current speech. Later the child struggles to associate concept with verbal symbol and to differentiate the functions of words.

A fruitful enquiry is the historical investigation into the development of recorded languages and those of primitive peoples, far as even these have moved from their origins. It has been found, *e.g.*, that the original forms of many languages had 'speech-units' or words much longer than those in general use to-day. Musical tone or pitch probably once played a great part in most languages, although pitch-differences are still all-important in a minority of tongues, like Chinese, Swedish and Russian. It is likely that originally language and song were, if not identical, at least only vaguely distinguished. Inflexions and other grammatical devices have generally been whittled down with the years; *e.g.*, the synthetic Lation process in *ad-am-av-isse-m* ('begin', 'love', perfect tense sign, subjunctive mood sign, first person singular sign) compared with English analytical 'I would have fallen in love'; but a complex word-structure predominated in some of the oldest languages of the Indo-European group. Some outside this group, *e.g.*, Malay and Chinese, are not so complex; on the other hand, there are highly complex non Indo-European languages for which there is no evidence that they were ever more complex.

The results of investigations lead to the belief that early language was a sing-song, *i.e.*, with varying pitch and stress, often complex, difficult of utterance

and inadequate to the expression of conceptual processes, but marking reactions to emotional stimuli in vaguely strung-together word-sentences. Broadly, for all languages, the evidence is as yet not very conclusive, but more specific findings may result from the comparison of Indo-European with other early languages.

What of future linguistic changes?—Is a universal single language possible or likely? There has been little disagreement on this desirability in removing obstacles to intercourse among peoples. In trade relations, at international conferences, as in the world of scientific research, the conflict of tongues is a disadvantage and one or more international auxiliary languages are called for. Basic English, Pidgin and Esperanto have been formulated. Whereas Esperanto has declined, Pidgin English is the trade vehicle of millions of diverse speakers. Among other auxiliary ‘blended’ languages in vigorous use at present are Urdu in India, based on a dialect of Hindu; Mandarin Chinese as spoken in most parts of China; Lingua Franca in the Levant; and Sabir (Pidgin French) in West Africa. These have a natural origin. Among the disadvantages of Esperanto are its preponderating Latin vocabulary, the use of many affixes glued on to root words, the accent marks and the monotonously recurring stress on the second-last syllable; as well as many primitive grammatical declensions, agreements and superfluous endings.

Basic English uses certain standard English words, a rigid selection of grammar and the normal spelling. It grew from Ogden’s search into the real meaning underlying our frequent woolly use of words. In clarifying meaning, he was led to simplify words and to specify, as Malherbe had done for French. Ogden believed that our necessary communications could be effected with a much smaller vocabulary than that now in common use: such a pruned English of say 850 fundamental words (more than half of them the most frequently occurring words in the language) is far more readily learnt by foreigners than normal English would be and is an admirable auxiliary. Affixes are used in Basic; words already international (telephone, zinc, alcohol, etc.) are retained; and minimum technical vocabularies allowed. It is alive and at times has the noble simplicity of much great literature. This argument does not impair the truth that it is necessary to know more than one language in order to avoid the error of thinking that ideas are expressed by only one set of symbols.

The following is an example of Basic:—‘In these days, when the need and the desire for international agreement are equally great, a common tongue is more necessary than ever. It is getting to be more and more clear that this common tongue will have to be English, which is now the language of the governments of many millions and part of the education of every great country’. The step from Basic, admittedly not always the more simple, to standard and universal English is often a short one.

Finally, we must admit that fashions in ethics and conduct often effect changes and contribute, e.g., to the use of ‘swear’ words, slang, jargon and of inexact, misleading language. Fashion has banned most swear words; some of them are or were intrinsically ‘good’ words, like ‘bloody’. The derivation from ‘by-our-Lady’ has given way to that from *bloedic* (silly) used as an intensifying adverb, an early Flemish word introduced by English soldiers.

It is, however, not always easy to say what is slang: a word may enter standard speech by to-morrow or it may die a sudden death. Words rise in the scale of respectability, e.g., German *Knecht* (serving man, serf) and *Knight*; or they may acquire a depreciatory meaning, e.g., German *Knabe* (boy) and *knave*. Abbreviations like *phone*, *plane*, *bus* and *zoo* are good in polite speech. Some slang terms are of reputable origin; thus the Australian *deener* (shilling) is Latin *denarius*.

Slang springs mainly from the desire to be vivid and intimate; hence *bloke*, of Romany origin; or it comes from the individual's wish to distinguish himself. Terms like *beaut* and *stunning* reveal the schoolboy's honourable discontent with battered and bleached phrasing and show his contempt for words worn threadbare. Much Australian slang has come from Cockney English and from American, the latter being now on the increase. *Bonzer* is giving way to *swell*. Intelligent philological guesswork can usually trace the origin of slang terms, e.g., *plonk* is probably First-World-War (*vin blanc*). In establishing an etymology, the evolution of both sound and meaning must be rationalised in conjunction, e.g., *un youm*; jackass; crayfish (Fr. *écrivisse*); scallop; and 'a second Royais' (<*aller à Rueil*) can thus be 'based'.

Any given trade or occupation has its technical jargon, not to be confused with slang; but the term 'jargon' is now also applied to verbal obscurities. Such jargon may reach the horror stage in English of the type, the 'receipt of your esteemed favour of the 10th inst.'—a jungle of *clichés* in which basic meaning is concealed by a high-sounding layer. Linguistic change of this kind shows the possible debasing, through the tyranny of words, of man's high faculty of true communication. In the end, a nation's or an individual's thoughts cannot be more accurate than the language in which they are spoken.

Dante said, 'Since man is a most unstable and changeable animal, no human speech can be permanent and continuous.'—But the miracle of language is enhanced by instantaneous speech-radiation, a social force from which unity may yet evolve from diversity. Linguistic science finds its joy in striving to discover how contacts may be made among men and why they succeed in a particular way. Thus linguistics may help in removing misunderstanding among the peoples of the earth.