

THURSDAY, MAY 20, 1880

## THE SCIENCE OF LANGUAGE

*Introduction to the Science of Language.* By A. H. Sayce, Deputy Professor of Comparative Philology in the University of Oxford. Two vols. (London: Kegan Paul and Co., 1880.)

THIS admirable treatise may be broadly described as the fitting complement and sequel to the author's "Principles of Comparative Philology." The method and theories of that work, as he is careful to remind us in the preface, form the solid basis of the present, and it is not saying too much to add that both together stand unrivalled as the most systematic and exhaustive treatise on the Science of Language in its present state that has yet appeared in our literature. At the same time the present work is sufficiently complete in itself to be read with pleasure and studied with profit by those who may be unacquainted with its forerunner, though this must still remain indispensable to a thorough grasp of the subject.

The author shrewdly remarks (i. 159) that "the comparative philologist should not introduce the frame of mind of the specialist into his comparative inquiries. The specialist who takes up comparative philology as a subsidiary pursuit is likely to spoil it in the taking." Being thus forewarned against an obvious danger, he has not yielded to the temptation of giving undue prominence to any particular branch, nor has he allowed his personal partiality for Assyrian studies in any way to interfere with the broad and catholic spirit pervading the whole work. This catholic spirit, constituting one of its special merits, is everywhere conspicuous, and nowhere more so than in his comprehensive classification of comparative philology into the three great divisions of phonology, sematology, and morphology (i., 141). This classification at once gives its due position to that more spiritual, though hitherto almost totally neglected, aspect of the subject which deals with the inner meaning, as phonology does with the outward or material sound of words. The difficulties associated with this branch, for which the happy term sematology is here adopted, are fully recognised; its somewhat vague and uncertain character, and the intricate psychological phenomena surrounding it, all receive due prominence. But a limit is assigned to the arbitrary and to the element of chance, and if a science of sematology is not already established on a solid basis, the course that research must take in this direction is at all events ably foreshadowed. The delicate modifications of meaning that words undergo in their historic life must be carefully noted, the general causes underlying them analysed and formulated, significant change reduced to definite principle and broadly generalised.

His philosophic classification of his subject enables the writer satisfactorily to settle a point still much discussed by philologists. Whether language is to be grouped with the natural or historical sciences is a question which, he justly remarks, has arisen from the partial views that have been taken of its true character. Speech is not mere sound, nor even articulate sound alone, for many animals can articulate, but articulate sound significant.

VOL. XXII.—No. 551

*Terminus*, said the schoolmen, *est vox significans*, and for Mr. Sayce the terminus or "word," as here used, is speech, for the isolated term has no independent or abstract existence, and the unit of speech is not the word, but the sentence. It thus becomes impossible to separate the sound from its meaning, phonology from sematology. But phonology, or the outward aspect of language, is confessedly physiological, and subject to purely physical or natural laws, while sematology is essentially historical. And so the whole difficulty is solved; for "if we claim for the science of language in general the rank of a historical science, it is only because the meaning, rather than the sound, is the essence of speech, and phonology the handmaid and instrument rather than the equivalent of glottology" (i. 165). But "the method pursued by the science of language is the method of physical science; and this, combined with the fact that the laws of sound are also physical . . . has occasioned the belief that the science of language is a physical science. But such a view results in identifying phonology and glottology, in making a subordinate science equivalent to the higher one, and in ignoring all those questions as to the nature and origin of language which are of supreme importance to the philosophy of speech" (*ib.*).

In the chapter devoted to the morphology of speech the attempt made by Hovelacque and some other recent writers to identify polysynthesis with agglutination receives no countenance. That attempt could obviously lead to nothing but hopeless confusion, for "the conception of the sentence that underlies the polysynthetic dialects is the precise converse of that which underlies the isolating or the agglutinative groups" (i. 126). This question has been elsewhere dealt with somewhat fully by this writer,<sup>1</sup> and it is to him a source of no little satisfaction to find his views here so fully endorsed. At the same time it seems difficult to accept the author's theory that polysynthesis is "the undeveloped sentence of primitive speech," and that "the polysynthetic languages of America preserve the beginnings of grammar, just as the Bushman dialects have preserved the beginnings of phonetic utterance" (ii. 216). For it is hard to believe that primeval man began to speak in "sesquipedalia verba," and in any case the presence of true pronouns in these lengthy sentence-words is alone sufficient to show that polysynthesis is itself a development, the outcome of slow fusion and of long ages of gradual phonetic decay. The Bushman clicks form very probably a connecting-link between articulate and inarticulate utterance. But the pronoun in all languages stands on a far higher relative level; it cannot be conceived as a primordial cut-and-dry invention, for it is an abstraction of a high order, whereas the first beginnings of speech must all have been made up of the crudest concrete concepts combined with involuntary or mechanical ejaculations.

But one of the peculiar charms of the present work is the extreme fairness of the author, who is always ready to recognise the cogency of objections to favourite theories, so that the reader feels that both sides of the question have been fairly placed before him. A good instance occurs at p. 209 of vol. i., where the weakness of Sagard's

<sup>1</sup> In Appendix to the "Central and South America" of "Stanford's Compendium."

testimony to the evanescent character of the Huron language is frankly acknowledged. Many other moot questions are touched with great impartiality, and it is well remarked that divergence of opinion is a healthy sign of life and scientific progress; for "it is only by the conflict and discussion of theories that truth can finally be reached, and the many controversies excited by the science of language show how broadly and deeply the foundations of the science are being laid" (i. 87).

A statement, however, is made a little further back which will perhaps cause some surprise, as tending to shake these very foundations and call in question conclusions that seemed almost universally accepted. The theory of evolution, which may be said to underlie all modern thought, and which has already passed almost beyond the pale of discussion, has naturally tended to remove much of the confusion previously associated with the various conflicting opinions entertained regarding the origin of human speech. For if true at all it is evident that this great principle must be of universal application, and when applied to language the inference was irresistible that there can be no immutable types of speech, any more than there are immutable animal and vegetable species. Hence the necessary conclusion that all present forms of speech are modifications of previously existing forms, that, however slowly, all are continually shifting, possibly retrograding under unfavourable conditions, but in the normal state advancing, for the history of evolution is on the whole the history of progress. A careful study of the texture of speech seemed fully to confirm these *à priori* deductions, and a general consensus was thus arrived at that there must have been some hypothetical root-state out of which language was slowly evolved, passing successively through lower to higher types, from the isolating to the polysynthetic, agglutinating, incorporating, inflectional, and analytic orders.

But in seeming opposition to these views the author holds that it cannot be proved that the primæval root-language ever existed, and that "equally unproved is the belief that isolating dialects develop into agglutinative, and agglutinative into inflectional" (p. 75). And at p. 131, while admitting the general doctrine of evolution, he seems still to argue for the immutability of linguistic types, though his language is here somewhat deficient in its usual clearness and point. "The Finnic idioms," he writes, "have become so nearly inflectional as to have led a recent scholar to suggest their relationship to our Aryan group; nevertheless they have never cleared the magical frontier between flexion and agglutination, hard as it may be to define, since to pass from agglutination to inflection is to revolutionise the whole system of thought and language and the basis on which it rests, and to break with the past psychological history and tendencies of a speech."

Here it should be observed that the author may not inconsistently deny the necessary development of agglutination into inflection, because he does not regard the latter as a higher type than the former, and because he takes, not the word or root, but the sentence, as the unit and starting-point of all speech. Now the sentence may have been originally cast in an agglutinative form, and if so agglutination would neither imply development in itself nor any necessary further evolu-

tion in a new direction. This, at least, we take to be the underlying argument, though it appears nowhere explicitly stated in this way. It is stated, however (p. 131), that by taking the sentence as the unit "there is no longer any difficulty in distinguishing between the several families of speech and assigning to each its character and place."

To all this many will of course reply that to take the sentence as the starting-point is to beg the whole question. It cannot, of course, be denied by the consistent evolutionist that there must have been a time when a single articulate utterance supplemented by tone and gesture, did duty for a whole sentence, and in this sense it may be admitted that the sentence is the starting-point of speech. But whether this incipient state can be regarded as constituting language, properly so called, is quite another matter, and in any case it could not be predicated of such language that it was either agglutinative or polysynthetic, or even isolating in the sense that Chinese or Annamese is isolating. Here we are, in fact, dealing rather with the germs of the plant than with the plant itself.

It will further be urged that if "the Finnic idioms have become so nearly inflectional," progress from agglutination in the direction of inflection is admitted, in which case the fact that "they have never cleared the magic frontier" becomes what the French would call a mere detail, a question of time or other circumstances. The Magyar has already developed an article, and the Dravidian tongues possess what look remarkably like true case-endings, while more than one language of the Caucasus, notably Georgian, Chechenz, and Lesghian, have apparently passed quite over to the inflecting state. The fact that this transition "revolutionises the whole system of thought and language" will not alarm those evolutionists who necessarily hold that revolution is the law of nature and the order of the universe. Only the great issues are worked out *sensim sine sensu*, and not by violent cataclysms and fresh creations, as was formerly supposed by unorthodox interpreters of a book which allows of but one creation and one partial cataclysm. Lastly, the critical analysis of agglutination, and still more of inflection, clearly shows that both are the result of sematological and phonetic decay continued over immense periods of time, during which numbers of concrete terms and notional words of all sorts gradually lost their independence, and thus became transformed to relational particles first loosely tacked on (agglutination), and then completely fused (inflection) with the theme. Thus it is that the passing vagaries of deep thinkers serve but to re-establish on firmer ground the very truths they seem to assail.

On other questions the work is equally suggestive, and there are some trenchant remarks at p. 349 of vol. i. which ought definitely to close the doors of the old school of etymologists. "The etymologist must be thoroughly trained in the principles of scientific philology. He must have mastered both phonology and sematology, and he must be well acquainted with more than one of the languages with which he deals. Then and then only can his labours be fruitful; then and then only will his work be a gain and not a hindrance. False etymologies stand in the way of true ones, and the charlatans who have brought the name of etymology into contempt have

discredited the labours of better men. There is much in etymology which must always defy analysis, there is much which will have to be corrected hereafter, but this will matter little if we have once learnt the lesson that change of sound and meaning can only take place in accordance with fixed and invariable law. Etymology is but a means to an end, and that end is partly the history of the development of thought and civilisation as reflected in the fossil records of speech, partly the discovery and illustration of the laws which govern the shifting and decay of sounds and the modifications of sense."

The whole subject of phonetics is of course treated in a masterly manner, and well illustrated with diagrams and useful tables of Lautverschiebung as applicable to the Semitic, Bantu, Finno-Tataric, and Aryan families. The last, especially, is very full, including the Oscan and Umbrian, the Old Welsh and Gaulish, besides those usually given. It need scarcely be added that this, like all other branches, is brought well up to date, a good instance of which is afforded by the reference to the use already made of the phonograph in the scientific treatment of phonetics. Most readers will here learn, probably for the first time, the curious fact that "all sounds may be reproduced backwards by simply beginning with the last forms indented on the tin-foil: *sociability*, for example, becoming *ytibilaitshos*. Diphthongs and double consonants may be reversed with equal clearness and precision, so that *bite*, which the phonograph pronounces *bâ-ee-t*, becomes *tee-âb*. In this way we have learnt that the *ch* of *cheque* is really a double letter, the reversed pronunciation of the word being *kesht*" (i. 335).

The question of mixed languages, that is, mixed in their structure, claims a good deal of attention, and is handled with considerable reserve. But the important truth is loudly proclaimed that the "physiological races of the modern world are far more mixed than the languages they speak; the physiologist has much more difficulty in distinguishing his races than has the glottologist in distinguishing his families of speech" (i. 366). This is perhaps as far as it is safe to go at present, and is sufficient for practical purposes. It points out that it is in the nature of ethnical groups to mix, and of linguistic groups to keep aloof, thus vindicating for language its rightful position in anthropological studies. It is not always or necessarily a test of race, but it is often an indispensable collateral agent of research, becomes under special circumstances, and with all due precaution, a final court of appeal, and in many cases bears witness to the presence of racial elements which would not otherwise be suspected. Its development also is extremely slow, slower even under certain conditions than that of physical types themselves, as shown, for instance, in the case of the Osmanli, Magyars, and many Finnish and Turkoman tribes, all of whom continue to speak purely agglutinating Finno-Tataric tongues, although through intermixture they have been largely assimilated to the Caucasian ethnical type.

The chapter on Roots (vol. ii.) is accompanied by a table of all known languages, for the classification of which Fr. Müller seems mainly responsible. The appended references to authorities will be found extremely useful, but the classification itself is defective in many

respects, and calls for revision in future editions. Sonrhay and Haussa, for instance, ought not to be grouped together, nor have Wakuafi (read Ki-Kwafi) and Masai anything in common with the Nuba and Fulah groups. It is not clear why Berber any more than Egyptian (both Hamitic) should be described as sub-Semitic; but it is still more startling to find Brahui amongst the neo-Sanskritic tongues in company with Siah-Pôsh, which latter would appear to belong rather to the Galcha or pre-Sanskritic of the Eastern Turkestan Highlands, and which is unaccountably excluded altogether from the table. Etruscan, in spite of Corssen, is grouped apart as agglutinating, though there are many good authorities for this view. But Horpa is not a Tibeto-Burman isolating tongue, nor are Lolo and Mautse properly linguistic terms, but rather collective Chinese names of hill-tribes, mostly probably of Caucasian stock and untuned speech. The "Mon-Annam" family has no existence, the Mon or Talain having little to do with the Annam, and nothing at all with Kambojan, which belongs to a totally different connection. The Miztec, Matlalzinca, Totonac, and other Mexican tongues are described as isolating, all being polysynthetic, some, such as the Miztec, in the very highest degree with "bunch-words" of fifteen and even seventeen syllables.

The second volume is largely occupied with some of the principal linguistic families typical of the several orders of speech, followed by concluding chapters on Comparative Mythology and the Origin of Language, all handled in a masterly manner, extremely suggestive even when somewhat heterodox, and accompanied by much incidental matter of great value and interest. The statement (p. 324) that "the characteristics of race were fixed before the invention of speech" is one of those astonishing paradoxes which seem inseparable from original thought, but which remain none the less paradoxes. It is scarcely conceivable that the yellow, black, fair, and other fundamental types of mankind should have become slowly differentiated before man had acquired the faculty of speech, that is, the very faculty by which the human is distinguished from all other species, and that the art was then "invented" in various independent centres. But though it cannot be argued on this ground that "the idioms of mankind have had many independent starting-points" (p. 323), few will probably question the conclusion that linguistic science "can throw no light on the ethnological problem of the original unity or diversity of the human race" (p. 324). Such questions are truly "the task of the ethnologist, not of the student of language" (*ib.*) And even should the hope have to be finally abandoned of ultimately establishing the original unity of human speech, no argument could thence be deduced in favour of the original diversity of the human species. Dispersions of babbling tribes, whether originally one or not, probably took place at various stages in the evolution of human speech, or at times while it was still in process of formation, or when little more than the faculty existed, so that it must needs have afterwards developed into types no longer reducible to one hypothetical primæval type. This hypothetical type becomes daily more shadowy, continually retreating to the background of an inconceivably remote past, according as the astonishing complexity and diversity of articulate speech is revealed to the earnest student of

language. But it seems obvious that this diversity and complexity must have been evolved in the natural course, whether starting from one or many original centres.

At p. 163 a view is taken of the Aryan suffixes which many will be inclined to regard as a retrogressive step rather than an advance in linguistic studies. "We must rid ourselves of the notion that suffixes were ever independent words like our 'if' or 'in'; so far back as our knowledge of Aryan speech extends they possessed no existence apart from the words to which they belonged, and which, again, only existed as words in so far as they possessed these suffixes. Suffixes became flexions through the help of analogy." The point would involve too much technical matter to be here adequately discussed, but it may be remarked that our knowledge of Aryan speech is as of yesterday compared with the many ages it must have taken to reach the highly-inflected state presented by the oldest known members of the family. If in a brief thousand years or thereabouts the Latin ablative *mente* had time to become a Romance adverbial suffix, the verb *habeo* a verbal ending, and the adverb *inde* a pronoun with a genitival force, surely there was ample time in the ten, twenty, or fifty thousand years of the early lifetime of the organic Aryan speech for hundreds of independent words to pass from one part of speech to another, from the noun or verb to the particle, and thence to the relational suffix. And if "suffixes became flexions through the help of analogy," being hitherto "meaningless terminations" (*ib.*), it may be asked through the help of what analogy? At all events, the internal vowel change here taken as their pattern does not meet the case, for, if properly considered, all such internal vowel change must itself be regarded as primarily due to the influence of reduplication and flexion acting on the body of the word, and gradually becoming absorbed, often leaving no trace of its former presence beyond the very vowel change in question. Such seems undoubtedly to be the history of the strong Teutonic conjugation and of such Teutonic plurals as seem now to be effected by mere internal modification, just as we know that it is the history of such past tenses in Latin as *ēgi*, *fēci*. Two things it seems impossible to admit—the development or invention of "meaningless terminations," that is, meaningless *ab initio*, and internal vowel change with flexional force, produced, as it were, by spontaneous effort independently of outward influence, the influence either of reduplication or of pre- or postfixes reacting on the theme.

The chapter on Comparative Mythology, as expounded in the light of comparative philology, is thoroughly satisfactory, and will be read with pleasure even by those unfamiliar with the technicalities of the subject. In the last chapter, also, on the Origin of Language and collateral subjects, much excellent advice is given touching spelling reform, the pronunciation of the classical tongues, the application of sound linguistic principles to the teaching of languages, and many other points of a more practical nature.

There is an excellent analytical index supplied by Mr. W. G. Hird, but it does not dispense with the necessity of a full alphabetical index, which is urgently needed in a work overflowing with matter of the most varied description, and which it may be hoped will be supplied in future editions. Some oversights and casual slips in minor

points should then also be rectified, and with that view a few of the more important may here be noted. The *ve* in the Italian compound *portandovelo* (ii. 210) is derived from the Latin adverb *ibi*, used pronominally instead of from the pronoun *vi*, *ve* often, of course, represents *ibi*, as in the sentence *io v'era* (lit. *ego ibi eram*); but it equally represents the pronoun, as in the sentence *io vi dico* (lit. *ego vobis dico*), and obviously in the compound in question. The Nogais (properly Nogais) are described (ii. 199) as "Russian Cossacks" instead of Tatars. The Nogais are of Tūrki stock, whereas all the Cossacks are of Slav stock, either Great Russians (Dōn Valley, Cis-Caucasia, &c.), or Little Russians (Ukrania). The Cossacks are often spoken of as Tatars by careless writers, confounding them with the *Cassaks*, who, being Kirghizes, are true Tatars. It seems scarcely accurate to say that in the Greek and Latin sentences *ῥῆπει* and *amat* "the subject is not expressed" (ii. 329), seeing that *εἰ* (for *ἐτι*) and the *t* of *amat* are pronominal, though so old that they do not distinguish the gender of the subject referred to, and may possibly have originally been *objective* forms. The statement (i. 417) that "in Hindustani the genitive takes the marks of gender according to the words to which it refers," is apt to mislead the unwary, who might conclude from this that the Hindustani noun had cases, whereas there is nothing but a general oblique form followed by postpositions. One of these postpositions (*kā* = of) follows the gender of the noun of reference (*larkē-kā*, *larkē-kī* according to circumstances), but the noun remains unchanged. There is another reference (p. 423) to a point of Hindustani grammar, which as worded is unintelligible. The place of the definite article is not supplied "by a dative with the suffix *-ko*," for there are no datives, but by the postposition *ko*, which, though usually giving a dative force, often idiomatically emphasises the objective noun and thus does duty as a sort of definite article. The reference to Voltaire (i. 60) should be emended by shifting the places of the words "consonants" and "vowels." No one who has ever heard a native of Northern India speak any of the current neo-Sanskritic tongues will hesitate to transcribe the sonant explosives with the rough breathing (*gha*, *dha*, *bha*) by the side of *kha*, *tha*, *pha*, though the point is treated as doubtful (i. 281). The *h* in such words as *ghora*, *bhāṭ*, *dhōbi* is heard quite as distinctly as it is in the English word *mad-house*. Lastly, such terms as "Turanian" (i. 325), "Alfurian," and even Malayo-Polynesian might well be dispensed with in future editions of a work, which as it stands reflects lasting credit on English scholarship, and which all will accordingly be anxious to see rendered even in small details as perfect as possible.

A. H. KEANE

#### STATICS

*Treatise on Statics.* By George Minchin, M.A. Second Edition. (Clarendon Press Series.)

SINCE the publication of Thomson and Tait's "Natural Philosophy," thirteen years ago, an important change in the treatment of the theory of dynamics has been making rapid progress. Previous to that time it was the almost universal practice to follow the French writers and to find a basis for the theory of the equilibrium of forces