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INTRODUCTION

BY

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INTRODUCTION

By Franz Boas

I. RACE AND LANGUAGE

Early Attempts to Determine the Position of the American Race

When Columbus started on his journey to reach the Indies, sailing westward, and discovered the shores of America, he beheld a new race of man, different in type, different in culture, different in language, from any known before that time. This race resembled neither the European types, nor the negroes, nor the better-known races of southern Asia. As the Spanish conquest of America progressed, other peoples of our continent became known to the invaders, and all showed a certain degree of outer resemblance, which led the Spaniards to designate them by the term "Indios" (Indians), the inhabitants of the country which was believed to be part of India. Thus the mistaken geographical term came to be applied to the inhabitants of the New World; and owing to the contrast of their appearance to that of other races, and the peculiarities of their cultures and their languages, they came to be in time considered as a racial unit.

The same point of view still prevailed when the discoveries included more extended parts of the New World. The people with whom the Spaniards and Portuguese came into contact in South America, as well as the inhabitants of the northern parts of North America, all seemed to partake so much of the same characteristics, that they were readily classed with the natives first discovered, and were considered as a single race of mankind.

It was only when our knowledge of the Indian tribes increased, that differences between the various types of man inhabiting our continent became known. Differences in degree of culture, as well as differences in language, were recognized at an early time. Much later came a recognition of the fact that the Indians of our continent differ in type as much among themselves as do the members of other races.

As soon as investigators began to concern themselves with these questions, the problem of the position of the natives of America among the races of mankind came to be of considerable interest, and speculations in regard to their origin and relationships occur even in the early descriptions of the New World.

Among the earlier attempts we find particularly endeavors to prove that certain parts of the beliefs and customs of the Indians agree with those of the Old World. Such agreements were considered proof that the Indians belong to one of the races enumerated in biblical history; and the theory that they represent the lost tribes of Israel was propounded frequently, and has held its own for a long time. In a similar way were traced analogies between the languages of the New World and those of the Old World, and many investigators believe even now that they have established such relationships. Attempts were also made to prove similarities in appearance between the American races and other races, and thus to determine their position among the races of the Old World.

Classifications based on Physical Type, Language, and Customs

The problems involved in the determination of the relations of the various races have been approached from two different points of view—either the attempt has been made to assign a definite position to a race in a classificatory system of the races of man, or the history of the race has been traced as far back as available data may permit.

The attempts to classify mankind are numerous. Setting aside the classifications based on biblical tradition, and considering only those that are based on scientific discussion, we find a number of attempts based on comparisons of the anatomical characteristics of mankind, combined with geographical considerations; others are based on the discussion of a combination of anatomical and cultural character-

istics—traits which are considered as characteristic of certain groups of mankind; while still others are based primarily on the study of the languages spoken by people representing a certain anatomical type.

The attempts that have thus been made have led to entirely different results. Blumenbach, one of the first scientists who attempted to classify mankind, first distinguished five races—the Caucasian, Mongolian, Ethiopian, American, and Malay. It is fairly clear that this classification is based as much on geographical as on anatomical considerations, although the description of each race is primarily an anatomical one. Cuvier distinguished three races—the white, yellow, and black. Huxley proceeds more strictly on a biological basis. He combines part of the Mongolian and American races of Blumenbach into one, assigns part of the South Asiatic peoples to the Australian type, and subdivides the European races into a dark and a light division. The numerical preponderance of the European types has evidently led him to make finer distinctions in this race, which he divides into the xanthochroic and melanochroic races. It would be easy to make subdivisions of equal value in other races. Still clearer is the influence of cultural points of view in classifications like those of Gobineau and Klemm (who distinguishes the active and passive races), according to the cultural achievements of the various types of man.

The most typical attempt to classify mankind from a consideration of both anatomical and linguistic points of view is that of Friederich Müller, who takes as the basis of his primary divisions the form of hair, while all the minor divisions are based on linguistic considerations.

Relations between Physical Type, Language, and Customs

An attempt to correlate the numerous classifications that have been proposed shows clearly a condition of utter confusion and contradiction. If it were true that anatomical form, language, and culture are all closely associated, and that each subdivision of mankind is characterized by a certain bodily form, a certain culture, and a certain language, which can never become separated, we might expect that the results of the various investigations would show better agreement. If, on the other hand, the various phenomena which were made the leading points in the attempt at classification are not

closely associated, then we may naturally expect such contradictions and lack of agreement as are actually found.

It is therefore necessary, first of all, to be clear in regard to the significance of anatomical characteristics, language, and culture, as characteristic of any subdivision of mankind.

It seems desirable to consider the actual development of these various traits among the existing races.

Permanence of Physical Type; Changes in Language and Culture

At the present period we may observe many cases in which a complete change of language and culture takes place without a corresponding change in physical type. This is true, for instance, among the North American negroes, a people by descent largely African; in culture and language, however, essentially European. While it is true that certain survivals of African culture and language are found among our American negroes, their culture is essentially that of the uneducated classes of the people among whom they live, and their language is on the whole identical with that of their neighbors—English, French, Spanish, and Portuguese, according to the prevalent language in various parts of the continent. It might be objected that the transportation of the African race to America was an artificial one, and that in earlier times extended migrations and transplantations of this kind have not taken place.

The history of medieval Europe, however, shows clearly that extended changes in language and culture have taken place many times without corresponding changes in blood.

Recent investigations of the physical types of Europe have shown with great clearness that the distribution of types has remained the same for a long period. Without considering details, it may be said that an Alpine type can easily be distinguished from a north-European type on the one hand, and a south-European type on the other. The Alpine type appears fairly uniform over a large territory, no matter what language may be spoken and what national culture may prevail in the particular district. The central-European Frenchmen, Germans, Italians, and Slavs are so nearly of the same type that we may safely assume a considerable degree of blood relationship, notwithstanding their linguistic differences.

Instances of similar kind, in which we find permanence of blood with far-reaching modifications of language and culture, are found in other parts of the world. As an example may be mentioned the Veddah of Ceylon, a people fundamentally different in type from the neighboring Singhalese, whose language they seem to have adopted, and from whom they have also evidently borrowed a number of cultural traits. Still other examples are the Japanese of the northern part of Japan, who are undoubtedly, to a considerable extent, Ainu in blood; and the Yukaghir of Siberia, who, while retaining to a great extent the old blood, have been assimilated in culture and language by the neighboring Tungus.

Permanence of Language; Changes of Physical Type

While it is therefore evident that in many cases a people, without undergoing a considerable change in type by mixture, have changed completely their language and culture, still other cases may be adduced in which it can be shown that a people have retained their language while undergoing material changes in blood and culture, or in both. As an example of this may be mentioned the Magyar of Europe, who have retained their old language, but have become mixed with people speaking Indo-European languages, and who have, to all intents and purposes, adopted European culture.

Similar conditions must have prevailed among the Athapascans, one of the great linguistic families of North America. The great body of people speaking languages belonging to this linguistic stock live in the northwestern part of America, while other dialects are spoken by small tribes in California, and still others by a large body of people in Arizona and New Mexico. The relationship between all these dialects is so close that they must be considered as branches of one large group, and it must be assumed that all of them have sprung from a language once spoken over a continuous area. At the present time the people speaking these languages differ fundamentally in type, the inhabitants of the Mackenzie river region being quite different from the tribes of California, and these, again, differing from the tribes of New Mexico. The forms of culture in these different regions are also quite distinct; the culture of the California Athapascans resembles that of other Californian tribes, while the culture of the Athapascans of New Mexico and Arizona is influenced by that of other peoples of that area. It seems most

plausible to assume in this case that branches of this stock migrated from one part of this large area to another, where they intermingled with the neighboring people, and thus changed their physical characteristics, while at the same time they retained their speech. Without historical evidence this process can not, of course, be proved. I shall refer to this example later on.

Changes of Language and Type

These two phenomena—a retention of type with a change of language, and a retention of language with a change of type—apparently opposed to each other, are still very closely related, and in many cases go hand in hand. An example of this is, for instance, the distribution of the Arabs along the north coast of Africa. On the whole, the Arab element has retained its language; but at the same time intermarriages with the native races were common, so that the descendants of the Arabs have often retained the old language and have changed their type. On the other hand, the natives have to a certain extent given up their own languages, but have continued to intermarry among themselves and have thus preserved their type. So far as any change of this kind is connected with intermixture, both types of changes must always occur at the same time, and will be classed as a change of type or a change of language, as our attention is directed to the one people or the other, or, in some cases, as the one or the other change is more pronounced. Cases of complete assimilation without any mixture of the people involved seem to be rare, if not entirely absent.

Permanence of Type and Language; Change of Culture

Cases of permanence of type and language and of change of culture are much more numerous. As a matter of fact, the whole historical development of Europe, from prehistoric times on, is one endless series of examples of this process, which seems to be much easier, since assimilation of cultures occurs everywhere without actual blood mixture, as an effect of imitation. Proof of diffusion of cultural elements may be found in every single cultural area which covers a district in which many languages are spoken. In North America, California offers a good example of this kind; for here many languages are spoken, and there is a certain degree of differentiation of type, but at the same time a considerable uniformity of culture pre-

vails. Another case in point is the coast of New Guinea, where, notwithstanding strong local differentiations, a certain fairly characteristic type of culture prevails, which goes hand in hand with a strong differentiation of languages. Among more highly civilized peoples, the whole area which is under the influence of Chinese culture might be given as an example.

These considerations make it fairly clear that, at least at the present time, anatomical type, language, and culture have not necessarily the same fates; that a people may remain constant in type and language and change in culture; that they may remain constant in type, but change in language; or that they may remain constant in language and change in type and culture. If this is true, then it is obvious that attempts to classify mankind, based on the present distribution of type, language, and culture, must lead to different results, according to the point of view taken; that a classification based primarily on type alone will lead to a system which represents, more or less accurately, the blood relationships of the people, which do not need to coincide with their cultural relationships; and that, in the same way, classifications based on language and culture do not need at all to coincide with a biological classification.

If this be true, then a problem like the much discussed Aryan problem really does not exist, because the problem is primarily a linguistic one, relating to the history of the Aryan languages; and the assumption that a certain definite people whose members have always been related by blood must have been the carriers of this language throughout history; and the other assumption, that a certain cultural type must have always belonged to this people—are purely arbitrary ones and not in accord with the observed facts.

Hypothesis of Original Correlation of Type, Language, and Culture

Nevertheless, it must be granted, that in a theoretical consideration of the history of the types of mankind, of languages, and of cultures, we are led back to the assumption of early conditions during which each type was much more isolated from the rest of mankind than it is at the present time. For this reason, the culture and the language belonging to a single type must have been much more sharply separated from those of other types than we find them to be at the present period. It is true that such a condition has nowhere

been observed; but the knowledge of historical developments almost compels us to assume its existence at a very early period in the development of mankind. If this is true, the question would arise, whether an isolated group, at an early period, was necessarily characterized by a single type, a single language, and a single culture, or whether in such a group different types, different languages, and different cultures may have been represented.

The historical development of mankind would afford a simpler and clearer picture, if we were justified in assuming that in primitive communities the three phenomena had been intimately associated. No proof, however, of such an assumption can be given. On the contrary, the present distribution of languages, as compared with the distribution of types, makes it plausible that even at the earliest times the biological units may have been wider than the linguistic units, and presumably also wider than the cultural units. I believe that it may be safely said that all over the world the biological unit is much larger than the linguistic unit: in other words, that groups of men who are so closely related in bodily appearance that we must consider them as representatives of the same variety of mankind, embrace a much larger number of individuals than the number of men speaking languages which we know to be genetically related. Examples of this kind may be given from many parts of the world. Thus, the European race—including under this term roughly all those individuals who are without hesitation classed by us as members of the white race—would include peoples speaking Indo-European, Basque, and Ural-Altaic languages. West African negroes would represent individuals of a certain negro type, but speaking the most diverse languages; and the same would be true, among Asiatic types, of Siberians; among American types, of part of the Californian Indians.

So far as our historical evidence goes, there is no reason to believe that the number of distinct languages has at any time been less than it is now. On the contrary, all our evidence goes to show that the number of apparently unrelated languages has been much greater in earlier times than at present. On the other hand, the number of types that have presumably become extinct seems to be rather small, so that there is no reason to suppose that at an early period there should have been a nearer correspondence between the number of distinct linguistic and anatomical types; and we are thus led to

the conclusion that presumably, at an early time, each human type may have existed in a number of small isolated groups, each of which may have possessed a language and culture of its own.

However this may be, the probabilities are decidedly in favor of the assumption that there is no necessity to assume that originally each language and culture were confined to a single type, or that each type and culture were confined to one language: in short, that there has been at any time a close correlation between these three phenomena.

The assumption that type, language, and culture were originally closely correlated would entail the further assumption that these three traits developed approximately at the same period, and that they developed conjointly for a considerable length of time. This assumption does not seem by any means plausible. The fundamental types of man which are represented in the negroid race and in the mongoloid race must have been differentiated long before the formation of those forms of speech that are now recognized in the linguistic families of the world. I think that even the differentiation of the more important subdivisions of the great races antedates the formation of the existing linguistic families. At any rate, the biological differentiation and the formation of speech were, at this early period, subject to the same causes that are acting upon them now, and our whole experience shows that these causes act much more rapidly on language than on the human body. In this consideration lies the principal reason for the theory of lack of correlation of type and language, even during the period of formation of types and of linguistic families.

What is true of language is obviously even more true of culture. In other words, if a certain type of man migrated over a considerable area before its language assumed the form which can now be traced in related linguistic groups, and before its culture assumed the definite type the further development of which can now be recognized, there would be no possibility of ever discovering a correlation of type, language, and culture, even if it had ever existed; but it is quite possible that such correlation has really never occurred.

It is quite conceivable that a certain racial type may have scattered over a considerable area during a formative period of speech, and that the languages which developed among the various groups

of this racial type came to be so different that it is now impossible to prove them to be genetically related. In the same way, new developments of culture may have taken place which are so entirely disconnected with older types that the older genetic relationships, even if they existed, can no longer be discovered.

If we adopt this point of view, and thus eliminate the hypothetical assumption of correlation between primitive type, primitive language, and primitive culture, we recognize that any attempt at classification which includes more than one of these traits can not be consistent.

It may be added that the general term "culture" which has been used here may be subdivided from a considerable number of points of view, and different results again might be expected when we consider the inventions, the types of social organization, or beliefs, as leading points of view in our classification.

Artificial Character of All Classifications of Mankind

We recognize thus that every classification of mankind must be more or less artificial, according to the point of view selected, and here, even more than in the domain of biology, we find that classification can only be a substitute for the genesis and history of the now existing types.

Thus we recognize that the essential object in comparing different types of man must be the reconstruction of the history of the development of their types, their languages, and their cultures. The history of each of these various traits is subject to a distinct set of modifying causes, and the investigation of each may be expected to contribute data toward the solution of our problem. The biological investigation may reveal the blood-relationships of types and their modifications under social and geographical environment. The linguistic investigation may disclose the history of languages, the contact of the people speaking them with other people, and the causes that led to linguistic differentiation and integration; while the history of civilization deals with the contact of a people with neighboring peoples, as well as with the history of its own achievements.

II. THE CHARACTERISTICS OF LANGUAGE

Definition of Language

The discussions of the preceding chapter have shown that a consideration of the human languages alone must not be understood to yield a history of the blood-relationships of races and of their component elements, but that all that we can hope to obtain is a clear understanding of the relationship of the languages, no matter by whom they may be spoken.

Before discussing the extent to which we may reconstruct the history of languages, it seems necessary to describe briefly the essential traits of human speech.

In our present discussion we do not deal with gesture-language or musical means of communication, but confine ourselves to the discussion of articulate speech; that is, to communication by means of groups of sounds produced by the articulating organs—the larynx, oral cavity, tongue, lips, and nose.

Character of Phonetics

Speech consists of groups of sounds produced by the articulating organs, partly noises made by opening and closing certain places in the larynx, pharynx, mouth, or nose, or by restricting certain parts of the passage of the breath; partly resonant sounds produced by the vocal chords.

Number of Sounds Unlimited

The number of sounds that may be produced in this manner is unlimited. In our own language we select only a limited number of all possible sounds; for instance, some sounds, like *p*, are produced by the closing and a sudden opening of the lips; others, like *t*, by bringing the tip of the tongue into contact with the anterior portion of the palate, by producing a closure at this point, and by suddenly expelling the air. On the other hand, a sound might be produced by placing the tip of the tongue between the lips, making a closure in this manner, and by expelling the air suddenly. This sound would to our ear partake of the character of both our *t* and our *p*, while it would correspond to neither of these. A comparison of the sounds of the well-known European languages—like English, French, and German; or even of the different dialects of the same

languages, like those of Scotch and of the various English dialects—reveals the fact that considerable variation occurs in the manner of producing sounds, and that each dialect has its own characteristic phonetic system, in which each sound is nearly fixed, although subject to slight modifications which are due to accident or to the effects of surrounding sounds.

Each Language Uses a Limited Number of Sounds

One of the most important facts relating to the phonetics of human speech is, that every single language has a definite and limited group of sounds, and that the number of those used in any particular dialect is never excessively large.

It would seem that this limitation in the use of sounds is necessary in order to make possible rapid communication. If the number of sounds that are used in any particular language were unlimited, the accuracy with which the movements of the complicated mechanism required for producing the sounds are performed would presumably be lacking, and consequently rapidity and accuracy of pronunciation, and with them the possibility of accurate interpretation of the sounds heard, would be difficult, or even impossible. On the other hand, limitation of the number of sounds brings it about that the movements required in the production of each become automatic, that the association between the sound heard and the muscular movements, and that between the auditory impression and the muscular sensation of the articulation, become firmly fixed. Thus it would seem that limited phonetic resources are necessary for easy communication.

Alleged Lack of Differentiation of Sounds in Primitive Languages

It has been maintained that this is not a characteristic found in more primitive types of languages, and particularly, examples of American languages have often been brought forward to show that the accuracy of their pronunciation is much less than that found in the languages of the civilized world.

It would seem that this view is based largely on the fact that certain sounds that occur in American languages are interpreted by observers sometimes as one European sound, sometimes as another. Thus the Pawnee language contains a sound which may be heard

more or less distinctly sometimes as an *l*, sometimes an *r*, sometimes as *n*, and again as *d*, which, however, without any doubt, is throughout the same sound, although modified to a certain extent by its position in the word and by surrounding sounds. It is an exceedingly weak *r*, made by trilling with the tip of the tongue at a point a little behind the roots of the incisors, and in which the tongue hardly leaves the palate, the trill being produced by the lateral part of the tongue adjoining the tip. As soon as the trill is heard more strongly, we receive the impression of an *r*. When the lateral movement prevails and the tip of the tongue does not seem to leave the palate, the impression of an *l* is strongest, while when the trill is almost suppressed and a sudden release of the tongue from the palate takes place, the impression of the *d* is given. The impression of an *n* is produced because the sound is often accompanied by an audible breathing through the nose. This peculiar sound is, of course, entirely foreign to our phonetic system; but its variations are not greater than those of the English *r* in various combinations, as in *broth*, *mother*, *where*. The different impression is brought about by the fact that the sound, according to its prevailing character, associates itself either with our *l*, or our *r*, *n*, or *d*.

Other examples are quite common. Thus, the lower Chinook has a sound which is readily perceived as a *b*, *m*, or *w*. As a matter of fact, it is a *b* sound, produced by a very weak closure of the lips and with open nose, the breath passing weakly both through the mouth and through the nose, and accompanied by a faint intonation of the vocal chords. This sound associates itself with our *b*, which is produced by a moderately weak release of the lips; with our *m*, which is a free breath through the nose with closed lips; and with our *w*, which is a breath through the lips, which are almost closed, all accompanied by a faint intonation of the vocal chords. The association of this sound with *w*, is particularly marked when it appears in combination with a *u* vowel, which imitates the characteristic *u* tinge of our *w*. Still another example is the *b* sound, which is produced with half-closed nose by the Indians of the Strait of Fuca, in the State of Washington. In this case the characteristic trait of the sound is a semiclosure of the nose, similar to the effect produced by a cold in the head. Not less common are sounds intermediate between our vowels. Thus we seem to find in a number of Indian languages

a vowel which is sometimes perceived as *o*, sometimes as *u* (continental pronunciation), and which is in reality pronounced in a position intermediate between these two sounds.

The correctness of this interpretation of Indian phonetics is perhaps best proved by the fact that observers belonging to different nationalities readily perceive the sounds in accordance with the system of sounds with which they are familiar. Often it is not difficult to recognize the nationality of a recorder from the system selected by him for the rendering of sounds.

Still another proof of the correctness of this view of Indian phonetics is given by the fact that, wherever there is a greater number of Indian sounds of a class represented by a single sound in English, our own sounds are misinterpreted in similar manner. Thus, for instance, the Indians of the North Pacific coast have a series of *l* sounds, which may be roughly compared to our sounds *tl*, *cl*, *gl*. Consequently, a word like *close* is heard by the Indians sometimes one way, sometimes another; our *cl* is for them an intermediate sound, in the same way as some Indian sounds are intermediate sounds to our ears. The alternation of the sounds is clearly an effect of perception through the medium of a foreign system of phonetics, not that of a greater variability of pronunciation than the one that is characteristic of our own sounds.

While the phonetic system of each language is limited and fixed, the sounds selected in different types of languages show great differences, and it seems necessary to compare groups of languages from the point of view of their constituent phonetic elements.

Brief Description of Phonetics

A complete discussion of this subject can not be given at this place; but a brief statement of the characteristics of articulate sounds, and the manner of rendering them by means of symbols, seems necessary.

All articulate sounds are produced by the vibrations of the articulating organs, which are set in motion by breathing. In the vast majority of cases it is the outgoing breath which causes the vibrations; while in a few languages, as in those of South Africa, the breath, while being drawn in, is used for producing the sound.

One group of sounds is produced by the vibration of the vocal chords, and is characterized by the form given to the cavities of

mouth and nose. These are the vowels. When the nose is closed, we have pure vowels; when the posterior part of the nose is more or less open, more or less nasalized vowels. The character of the vowel depends upon the form given to the oral cavity. The timbre of the vowels changes according to the degree to which the larynx is raised; the epiglottis lowered or raised; the tongue retracted or brought forward and its back rounded or flattened; and the lips rounded and brought forward, or an elongated opening of the mouth produced by retracting the corners of the mouth. With open lips and the tongue and pharynx at rest, but the soft palate (velum) raised, we have the pure vowel *a*, similar to the *a* in *father*. From this sound the vowels vary in two principal directions. The one extreme is *u* (like *oo* in English *fool*), with small round opening of the protruding lips, tongue retracted, and round opening between tongue and palate, and large opening between larynx and pharynx, the larynx still being almost at rest. The transitional sounds pass through *â* (*aw* in English *law*) and *o* (as in *most*), but the range of intermediate positions is continuous. In another direction the vowels pass from *a* through *e* (*a* in English *mane*) to *i* (*ee* in *fleet*). The *i* is pronounced with extreme retraction of the corners of the mouth and elongated opening of the lips, with very narrow flat opening between tongue and palate, and the posterior part of the tongue brought forward, so that there is a wide opening in the back part of the mouth, the larynx being raised at the same time.

Variations of vowels may be produced by a different grouping of the movements of the articulating organs. Thus, when the lips are in *i* position, the tongue and pharynx and larynx in *u* position, we have the sound *ü*, which is connected with the *a* by a series passing through *ö*. These sounds are similar to the German umlaut.

Other combinations of positions of the tongue and of the lips occur, although the ones here described seem to be the most frequent vowel-sounds. All vowels may become very much weakened in strength of articulation, and dwindle down to a slight intonation of the vocal chords, although retaining the peculiar vowel timbre, which depends upon the position of mouth, nose, and lips. When this articulation becomes very weak, all the vowels tend to become quite similar in character, or may be influenced in their timbre by neighboring consonants, as will be described later.

All sounds produced by vibrations in any part of the articulating organs other than the vocal chords are consonants. These vibrations may be produced either by closing the air-passages completely and then suddenly opening the closure, or by producing a narrowing or stricture at any point. The former series of sounds are called "stops" (like our *p*, *t*, *k*). In all of these there is a complete closure before the air is expelled. The latter are called "spirants" or "continued" (like our *s* and *f*), in which there is a continuous escape of breath. When a stop is made and is followed by a breathing through a stricture at the same place, sounds develop like our *ts*. These are called "affricatives." When the mouth is completely stopped, and the air escapes through the nose, the sound is called a "nasal consonant" (like our *m* and *n*). There may also be stricture and nasal opening. A rapidly repeated series of stops, a trill, is represented by our *r*. The character of the sound depends largely upon the parts of the articulating organs that produce the closure or stricture, and upon the place where these occur. Closure or stricture may be made by the lips, lips and tongue, lips and teeth, tongue and teeth, tongue and hard palate, tongue and soft palate (velum), by the vocal chords, and in the nose.

In the following table, only the principal groups of consonants are described. Rare sounds are omitted. According to what has been said before, it will be recognized that here also the total number of possible sounds is infinitely large.

Bilabial stop	p
Linguo-palatal stops:	
Apical (dental, alveolar, post-alveolar)	t
Cerebral (produced with the tip of the tongue turned backward)	t
Dorsal:	
Anterior palatal	k·
Medial	k
Velar	q
Glottal (a stop produced with the vocal chords)	ʔ
Nasal	n

Almost all these stops may be modified by giving to the closure a different degree of stress. In English we have two principal degrees of stress, represented, for instance, by our *b* and *p* or *d* and *t*. In many languages, as, for instance, in Sioux and in the languages of the Pacific coast, there are three degrees of stress that may be

readily differentiated. The strongest of these we call the "fortis," and indicate it by following the consonant by an ! (*p!*, *t!*).

When these stops are not accompanied by any kind of vibration of the vocal chords, they are called "surds."

It is, of course, also possible that more than one stop may be made at one time. Thus it might be possible to close at the same time the lips and the posterior part of the mouth with the tongue. This type of combination is, however, rare; but we find very frequently articulation of the vocal chords with stops. This results in the voiced consonants, or sonants. In English we find that almost always the stress of articulation of the voiced sound is less than the stress of articulation of the unvoiced sound, or surd; but this correlation is not necessary. In American languages particularly, we find very commonly the same degree of stress used with voicing and without voicing, which brings it about that to the European ear the surd and sonant are difficult to distinguish.

A third modification of the consonants is brought about by the strength of breathing accompanying the release of the closure. In a sound like *t*, for instance, the sound may be simply produced by closing the mouth, by laying the tip of the tongue firmly against the palate, producing a slightly increased amount of air-pressure behind the tongue, and then releasing the closure. On the other hand, the sound may be produced by bringing about the closure and combining the release with the expiration of a full breath. Sounds which are accompanied by this full breathing may be called "aspirates," and we will designate the aspiration by ', the symbol of the Greek spiritus asper. This full breathing may follow the stop, or may begin even before the completion of the closure. With the increased stress of closure of the fortis is connected a closure of the glottis or of the posterior part of the tongue, so that only the air that has been poured into the vocal cavity is expelled.

In the case of voiced consonants, the voicing may either be entirely synchronous with the consonant, or it may slightly precede or follow it. In both of these cases we may get the impression of a preceding or following exceedingly weak vowel, the timbre of which will depend essentially upon the accompanying consonant. When the timbre is very indefinite, we write this vowel *E;* when it is more definite, *A*, *I*, *O*, *U*, etc. In other cases, where the release at the

closure is made without a full breath going out, and simply by compressing the air slightly in the space behind the closure, a break is very liable to originate between the stop and the following sound of the word. Such a hiatus in the word is indicated by an apostrophe (’). It seems likely that, where such a hiatus occurs following a vowel, it is generally due to a closing of the glottis.

Most of the phenomena here described may also occur with the spirants and nasals, which, however, do not seem to differ so much in regard to strength; while the character of the outgoing breath, the voicing and the breaking-off, show traits similar to those observed among the stops.

All the stops may be changed into nasals by letting the air escape through the nose while the closure is continued. In this manner originate our *n* and *m*. The nasal opening may also differ in width, and the stricture of the upper nares may produce semi-nasalized consonants.

In the spirant sounds before described, the escape of the air is along the middle line of the palate. There are a number of other sounds in which the air escapes laterally. These are represented by our *l*. They also may vary considerably, according to the place and form of the opening through which the air escapes and the form of closure of the mouth.

It seems that the peculiar timbre of some of the consonants depends also upon the resonance of the oral opening. This seems to be particularly the case in regard to the *t* and *k* sounds. In pronouncing the *t* sounds, one of the essential characteristics seems to be that the posterior part of the mouth is open, while the anterior portion of the mouth is filled by the tongue. In the *k* series, on the other hand, the posterior portion of the mouth is filled by the tongue, while the anterior portion remains open. Sounds produced with both the posterior and anterior portion of the mouth open partake of the character of both the *k* and *t* series.[1]

Two of the vowels show a close affiliation to consonants of the continuant series. These are *i* and *u*, owing largely to the fact that in *i* the position of the tongue is very nearly a stricture in the anterior portion of the mouth, while in *u* the position of the lips is quite near to a stricture. Thus originate the semi-vowels *y* and *w*. The last sound that must be mentioned is the free breathing *h*, which, in its

[1] See P. W. Schmidt, Anthropos, II, 834.

most characteristic form, is produced by the expiration of the breath with all the articulating organs at rest.

In tabular form we obtain thus the following series of the most important consonantic sounds:

	Stops.			Spirants.		Nasals.		Trill.	
	Sonant.	Surd.	Fortis.	Sonant.	Surd.	Sonant.	Surd.	Sonant.	Surd.
Bilabial	b	p	p!	v	f	m	m̥		
Labio-dental				v	f				
Linguo-labial	d	t	t!	ç	ȼ	n	n̥		
Linguo-dental	d	t	t!	ç	ȼ	n	n̥		
Dental				j	c				
Lingual—									
Apical, Cerebral	d	t	t!	z	s	n	n̥	r	r̥
Dorsal—									
Medial	g	k	k!	γ	x̣	ñ	ñ̥	r	r̥
Velar	g	q	q!	ɣ̣	x	ñ	ñ̥	r̥	R
Lateral	l̥	L	L!	l	ɬ				
Glottal	ɛ								
Nasal	N								

Semi-vowels y, w. Breath, 'h. Hiatus '.

The vocalic tinge of consonants is expressed by superior vowels following them: ^{a} ^{e} ^{i} ^{o} ^{u}. The series of affricatives which begin with a stop and end with a continued sound have been omitted from this table.

It will be noticed that in the preceding table the same symbols are used in several columns. This is done, because, ordinarily, only one, or at most two, series of these groups occur in one language, so that these differences can be expressed in each special case by diacritical marks. Attempts have been made by other authors to give a general system of sound representation. For any particular language, these are liable to become cumbersome, and are therefore not used in the sketches contained in this volume.

Unconsciousness of Phonetic Elements

In the preceding pages we have briefly discussed the results of an analysis of the phonetic elements of human speech. It must, however, be remembered that the single sound as such has no independent existence, that it never enters into the consciousness of the speaker, but that it exists only as a part of a sound-complex which conveys a definite meaning. This will be easily recognized, if we consider for a moment grammatical forms in the English language in which the modification of the idea is expressed by a single sound. In the word

hills, the terminal *s* does not enter our consciousness as a separate element with separate significance, expressing the idea of plurality,—except, perhaps, in so far as our grammatical training has taught us the fact that plurals may be formed by the use of a terminal *s*,—but the word forms a firm unit, which conveys a meaning only as a whole. The variety of uses of the terminal *s* as a plural, possessive, and third person singular of the verb, and the strong effort required to recognize the phonetic identity of these terminal elements, may be adduced as a further proof of the fact that the single phonetic elements become conscious to us only as a result of analysis. A comparison of words that differ only in a single sound, like *mail* and *nail*, *snake* and *stake*, makes it also clear that the isolation of sounds is a result of secondary analysis.

Grammatical Categories

Differences in Categories of Different Languages

In all articulate speech the groups of sounds which are uttered serve to convey ideas, and each group of sounds has a fixed meaning. Languages differ not only in the character of their constituent phonetic elements and sound-clusters, but also in the groups of ideas that find expression in fixed phonetic groups.

Limitation of the Number of Phonetic Groups Expressing Ideas

The total number of possible combinations of phonetic elements is also unlimited; but only a limited number are used to express ideas. This implies that the total number of ideas that are expressed by distinct phonetic groups is limited in number.

Since the total range of personal experience which language serves to express is infinitely varied, and its whole scope must be expressed by a limited number of phonetic groups, it is obvious that an extended classification of experiences must underlie all articulate speech.

This coincides with a fundamental trait of human thought. In our actual experience no two sense-impressions or emotional states are identical. Nevertheless we classify them, according to their similarities, in wider or narrower groups the limits of which may be determined from a variety of points of view. Notwithstanding their individual differences, we recognize in our experiences common elements, and consider them as related or even as the same, provided a

sufficient number of characteristic traits belong to them in common. Thus the limitation of the number of phonetic groups expressing distinct ideas is an expression of the psychological fact that many different individual experiences appear to us as representatives of the same category of thought.

This trait of human thought and speech may be compared in a certain manner to the limitation of the whole series of possible articulating movements by selection of a limited number of habitual movements. If the whole mass of concepts, with all their variants, were expressed in language by entirely heterogeneous and unrelated sound-complexes, a condition would arise in which closely related ideas would not show their relationship by the corresponding relationship of their phonetic symbols, and an infinitely large number of distinct phonetic groups would be required for expression. If this were the case, the association between an idea and its representative sound-complex would not become sufficiently stable to be reproduced automatically without reflection at any given moment. As the automatic and rapid use of articulations has brought it about that a limited number of articulations only, each with limited variability, and a limited number of sound-clusters, have been selected from the infinitely large range of possible articulations and clusters of articulations, so the infinitely large number of ideas have been reduced by classification to a lesser number, which by constant use have established firm associations, and which can be used automatically.

It seems important at this point of our considerations to emphasize the fact that the groups of ideas expressed by specific phonetic groups show very material differences in different languages, and do not conform by any means to the same principles of classification. To take again the example of English, we find that the idea of WATER is expressed in a great variety of forms: one term serves to express water as a LIQUID; another one, water in the form of a large expanse (LAKE); others, water as running in a large body or in a small body (RIVER and BROOK); still other terms express water in the form of RAIN, DEW, WAVE, and FOAM. It is perfectly conceivable that this variety of ideas, each of which is expressed by a single independent term in English, might be expressed in other languages by derivations from the same term.

Another example of the same kind, the words for SNOW in Eskimo, may be given. Here we find one word, *aput*, expressing SNOW ON

THE GROUND; another one, *qana*, FALLING SNOW; a third one, *piq-sirpoq*, DRIFTING SNOW; and a fourth one, *qimuqsuq*, A SNOWDRIFT.

In the same language the SEAL in different conditions is expressed by a variety of terms. One word is the general term for SEAL; another one signifies the SEAL BASKING IN THE SUN; a third one, a SEAL FLOATING ON A PIECE OF ICE; not to mention the many names for the seals of different ages and for male and female.

As an example of the manner in which terms that we express by independent words are grouped together under one concept, the Dakota language may be selected. The terms *naxta'ka* TO KICK, *paxta'ka* TO BIND IN BUNDLES, *yaxta'ka* TO BITE, *ic'a'xtaka* TO BE NEAR TO, *boxta'ka* TO POUND, are all derived from the common element *xtaka* TO GRIP, which holds them together, while we use distinct words for expressing the various ideas.

It seems fairly evident that the selection of such simple terms must to a certain extent depend upon the chief interests of a people; and where it is necessary to distinguish a certain phenomenon in many aspects, which in the life of the people play each an entirely independent rôle, many independent words may develop, while in other cases modifications of a single term may suffice.

Thus it happens that each language, from the point of view of another language, may be arbitrary in its classifications; that what appears as a single simple idea in one language may be characterized by a series of distinct phonetic groups in another.

The tendency of a language to express a complex idea by a single term has been styled "holophrasis," and it appears therefore that every language may be holophrastic from the point of view of another language. Holophrasis can hardly be taken as a fundamental characteristic of primitive languages.

We have seen before that some kind of classification of expression must be found in every language. This classification of ideas into groups, each of which is expressed by an independent phonetic group, makes it necessary that concepts which are not readily rendered by a single one among the available sound-complexes should be expressed by combinations or by modifications of what might be called the elementary phonetic groups, in accordance with the elementary ideas to which the particular idea is reduced.

This classification, and the necessity of expressing certain experiences by means of other related ones, which by limiting one another

define the special idea to be expressed, entail the presence of certain formal elements which determine the relations of the single phonetic groups. If each idea could be expressed by a single phonetic group, languages without form would be possible. Since, however, ideas must be expressed by being reduced to a number of related ideas, the kinds of relation become important elements in articulate speech; and it follows that all languages must contain formal elements, and that their number must be the greater, the fewer the elementary phonetic groups that define special ideas. In a language which commands a very large, fixed vocabulary, the number of formal elements may become quite small.

Grammatical Processes

It is important to note that, in the languages of the world, the number of processes which are utilized to express the relations of terms is limited. Presumably this is due to the general characteristics of articulate speech. The only methods that are available for expressing the relations between definite phonetic groups are their composition in definite order, which may be combined with a mutual phonetic influence of the component elements upon one another, and inner modification of the phonetic groups themselves. Both these methods are found in a great many languages, but sometimes only the method of composition occurs.

Word and Sentence

In order to understand the significance of the ideas expressed by independent phonetic groups and of the elements expressing their mutual relations, we have to discuss here the question, What forms the unit of speech? It has been pointed out before that the phonetic elements as such can be isolated only by analysis, and that they occur in speech only in combinations which are the equivalents of definite concepts.

Since all speech is intended to serve for the communication of ideas, the natural unit of expression is the sentence; that is to say, a group of articulate sounds which convey a complete idea. It might seem that speech can readily be further subdivided, and that the word also forms a natural unit from which the sentence is built up. In most cases, however, it is easy to show that such is not the case, and that the word as such is known only by analysis. This is particularly

clear in the case of words like prepositions, conjunctions, or verbal forms which belong to subordinate clauses. Thus it would be exceedingly difficult to imagine the use of words like *and, for, to, were,* expressed in such a way that they would convey a clear idea, except perhaps in forms like the Laconic *If,* in which all the rest of the sentence is implied, and sufficiently indicated by the *if.* In the same way, however, we who are grammatically trained may use a simple ending to correct an idea previously expressed. Thus the statement *He sings beautifully* might elicit a reply, *sang;* or a laconically inclined person might even remark, in reply to the statement *He plays well, -ed,* which by his friends might be well understood. It is clear that in all these cases the single elements are isolated by a secondary process from the complete unit of the sentence.

Less clear appears the artificiality of the word as a unit in those cases in which the word seems to designate a concept that stands out clearly from others. Such is the case, for instance, with nouns; and it might seem that a word like *stone* is a natural unit. Nevertheless it will be recognized that the word *stone* alone conveys at most an objective picture, not a complete idea.

Thus we are led to the important question of the relation of the word to the sentence. Basing our considerations on languages differing fundamentally in form, it would seem that we may define the word as *a phonetic group which, owing to its permanence of form, clearness of significance, and phonetic independence, is readily separated from the whole sentence.* This definition obviously contains a considerable number of arbitrary elements, which may induce us, according to the general point of view taken, sometimes to designate a certain unit as a word, sometimes to deny its independent existence. We shall see later on, in the discussion of American languages, that this practical difficulty confronts us many times, and that it is not possible to decide with objective certainty whether it is justifiable to consider a certain phonetic group as an independent word or as a subordinate part of a word.

Nevertheless there are certain elements contained in our definition which seem to be essential for the interpretation of a sound-complex as an independent word. From the point of view of grammatical form, the least important; from the point of view of phonetics, how-

ever, the most fundamental, is the phonetic independence of the element in question. It has been pointed out before how difficult it is to conceive the independence of the English *s*, which expresses the plural, the possessive, and the third person singular of the verb. This is largely due to the phonetic weakness of this grammatical element. If the idea of plurality were expressed by an element as strong phonetically as the word *many;* the possessive part of the word, by an element as strong as the preposition *of;* and the third person singular, by an element like *he*—we might, perhaps, be much more ready to recognize the character of these elements as independent words, and we actually do so. For example, *stones, John's, loves,* are single words; while *many sheep, of stone, he went,* are each considered as two words. Difficulties of this kind are met with constantly in American languages. Thus we find in a language like the Chinook that modifying elements are expressed by single sounds which phonetically enter into clusters which are pronounced without any break. To give an example: The word *aniā'lōt* I GIVE HIM TO HER may be analyzed into the following elements: *a* (tense), *n* I, *i* HIM, *a* HER, *l* TO, *ō* (direction away), *t* TO GIVE. Here, again, the weakness of the component elements and their close phonetic association forbid us to consider them independent words; while the whole expression appears to us as a firm unit.

Whenever we are guided by this principle alone, the limitation of the word unit appears naturally exceedingly uncertain, on account of the difference in impression of the phonetic strength of the component elements.

It also happens that certain elements appear sometimes with such phonetic weakness that they can not possibly be considered as independent units of the sentence, while closely related forms, or even the same forms in other combinations, may gain the strength which they are lacking in other cases. As an example of this kind may be given the Kwakiutl, in which many of the pronominal forms appear as exceedingly weak phonetic elements. Thus the expression HE STRIKES HIM WITH IT is rendered by *mîx·ᵋ·ᵋī'dɛqs*, in which the two terminal elements mean: *q* HIM, *s* WITH IT. When, however, substantives are introduced in this expression for object and instrument, the *q* assumes the fuller form *xa*, and the *s* the fuller form *sa*, which we might quite readily write as independent words analogous to our articles.

I doubt very much whether an investigator who would record French in the same way as we do the unwritten American languages would be inclined to write the pronominal elements which enter into the transitive verb as independent words, at least not when recording the indicative forms of a positive verb. He might be induced to do so on discovering their freedom of position which appears in the negative and in some interrogative forms.

The determining influence of the freedom of position of a phonetically fixed part of the sentence makes it necessary to include it in our definition of the word.

Whenever a certain phonetic group appears in a variety of positions in a sentence, and always in the same form, without any, or at least without material, modifications, we readily recognize its individuality, and in an analysis of the language we are inclined to consider it as a separate word. These conditions are fully realized only in cases in which the sound-complex in question shows no modifications at all.

It may, however, happen that minor modifications occur, particularly at the beginning and at the end, which we may be ready to disregard on account of their slight significance as compared to the permanence of the whole word. Such is the case, for instance, in the Dakota language, in which the terminal sound of a permanent word-complex which has a clearly defined significance will automatically modify the first sound of the following word-complex which has the same characteristics of permanence. The reverse may also occur. Strictly speaking, the line of demarcation between what we should commonly call two words is lost in this case; but the mutual influence of the two words in connection is, comparatively speaking, so slight that the concept of the individuality of the word outweighs their organic connection.

In other cases, where the organic connection becomes so firm that either both or one of the component elements may never occur without signs marking their close coupling, they will appear to us as a single unit. As an example of this condition may be mentioned the Eskimo. This language contains a great many elements which are quite clear in their significance and strong in phonetic character, but which in their position are so limited that they always follow other definite parts of the sentence, that they can never form the beginning of a complete phonetic group, and

that the preceding phonetic group loses its more permanent phonetic form whenever they appear added to it. To give an example: *takuvoq* means HE SEES; *takulerpoq* means HE BEGINS TO SEE. In the second form the idea of seeing is contained in the element *taku-*, which by itself is incomplete. The following element, *-ler*, can never begin a sentence, and attains the significance of BEGINNING only in connection with a preceding phonetic group, the terminal sound of which is to a certain extent determined by it. In its turn, it requires an ending, which expresses, in the example here selected, the third person singular, *-poq;* while the word expressing the idea of SEEING requires the ending *-voq* for the same person. These also can not possibly begin a sentence, and their initial sounds, *v* and *p*, are determined solely by the terminal sounds of the preceding elements. Thus it will be seen that this group of sound-complexes forms a firm unit, held together by the formal incompleteness of each part and their far-reaching phonetic influences upon one another. It would seem that, in a language in which the elements are so firmly knit together as in Eskimo, there could not be the slightest doubt as to what constitutes the word in our ordinary sense of the term. The same is true in many cases in Iroquois, a language in which conditions quite similar to those in the Eskimo prevail. Here an example may be given from the Oneida dialect. *Watgajijanegale* THE FLOWER BREAKS OPEN consists of the formal elements *wa-*, *-t-*, and *-g-*, which are temporal, modal, and pronominal in character; the vowel *-a-*, which is the character of the stem *-jija* FLOWER, which never occurs alone; and the stem *-negale* TO BREAK OPEN, which also has no independent existence.

In all these cases the elements possess great clearness of significance, but the lack of permanence of form compels us to consider them as parts of a longer word.

While in some languages this gives us the impression of an adequate criterion for the separation of words, there are other cases in which certain parts of the sentence may be thus isolated, while the others retain their independent form. In American languages this is particularly the case when nouns enter the verbal complex without any modification of their component elements. This is the case, for instance, in Pawnee: *tā'tuk^{u}t* I HAVE CUT IT FOR THEE, and *rīks* ARROW, combine into *tatū'riksk^{u}t* I CUT THY ARROW. The closeness of connection of these forms is even clearer in cases in which far-reach-

ing phonetic modifications occur. Thus the elements *ta-t-ru$^{\varepsilon}$n* combine into *ta'hu$^{\varepsilon}$n* I MAKE (because *tr* in a word changes to *h*); and *ta-t-rīks-ru$^{\varepsilon}$n* becomes *tahīkstu$^{\varepsilon}$n* I MAKE AN ARROW (because *r* after *s* changes to *t*). At the same time *rīks* ARROW occurs as an independent word.

If we follow the principle laid down in the preceding remarks, it will readily be seen that the same element may appear at one time as an independent noun, then again as a part of a word, the rest of which has all the characteristics before described, and which for this reason we are not inclined to consider as a complex of independent elements.

Ambiguity in regard to the independence of parts of the sentence may also arise either when in their significance they become dependent upon other parts of the sentence, or when their meaning is so vague and weak as compared to the other parts of the sentence that we are led to regard them as subordinate parts. Words of this kind, when phonetically strong, will generally be considered as independent particles; when, on the other hand, they are phonetically weak, they will generally be considered as modifying parts of other words. A good example of this kind is contained in the Ponca texts by the Rev. James Owen Dorsey,[1] in which the same elements are often treated as independent particles, while in other cases they appear as subordinate parts of words. Thus we find *ǵéama* THESE (p. 23, line 17), but *jábe amá* THE BEAVER (p. 553, line 7).

The same is true in regard to the treatment of the grammar of the Sioux by the Rev. S. R. Riggs. We find in this case, for instance, the element *pi* always treated as the ending of a word, probably owing to the fact that it represents the plural, which in the Indo-European languages is almost always expressed by a modification of the word to which it applies. On the other hand, elements like *kta* and *śni*, signifying the future and negation respectively, are treated as independent words, although they appear in exactly the same form as the *pi* mentioned before.

Other examples of this kind are the modifying elements in Tsimshian, a language in which innumerable adverbial elements are expressed by fairly weak phonetic groups which have a definite position. Here, also, it seems entirely arbitrary whether these phonetic groups are considered as separate words, or whether they

[1] Contributions to North American Ethnology, VI.

are combined with the verbal expressions into a single word. In these cases the independent existence of the word to which such particles are joined without any modification will generally determine us to consider these elements as independent particles, provided they are phonetically strong enough; while whenever the verbal expression to which they are joined is modified either by the insertion of these elements between its component parts, or in some other way, we are inclined to consider them as parts of the word.

It seemed important to discuss somewhat fully the concept of the word in its relation to the whole sentence, because in the morphological treatment of American languages this question plays an important rôle.

Stem and Affix

The analytic treatment of languages results in the separation of a number of different groups of the elements of speech. When we arrange these according to their functions, it appears that certain elements recur in every single sentence. These are, for instance, the forms indicating subject and predicate, or, in modern European languages, forms indicating number, tense, and person. Others, like terms expressing demonstrative ideas, may or may not occur in a sentence. These and many others are treated in our grammars. According to the character of these elements, they seem to modify the material contents of the sentence; as, for instance, in the English sentences *he strikes him,* and *I struck thee,* where the idea of striking somebody appears as the content of the communication; while the ideas *he, present, him,* and *I, past, thee,* appear as modifications.

It is of fundamental importance to note that this separation of the ideas contained in a sentence into material contents and formal modifications is an arbitrary one, brought about, presumably, first of of all, by the great variety of ideas which may be expressed in the same formal manner by the same pronominal and tense elements. In other words, the material contents of the sentence may be represented by subjects and predicates expressing an unlimited number of ideas, while the modifying elements—here the pronouns and tenses—comprise, comparatively speaking, a very small number of ideas. In the discussion of a language, the parts expressing the material contents of sentences appear to us as the subject-matter of lexi-

cography; parts expressing the modifying relations, as the subject-matter of grammar. In modern Indo-European languages the number of ideas which are expressed by subordinate elements is, on the whole, limited, and for this reason the dividing-line between grammar and dictionary appears perfectly clear and well drawn. In a wider sense, however, all etymological processes and word compositions must be considered as parts of the grammar; and, if we include those, we find that, even in Indo-European languages, the number of classifying ideas is quite large.

In American languages the distinction between grammar and lexicography often becomes quite obscure, owing to the fact that the number of elements which enter into formal compositions becomes very large. It seems necessary to explain this somewhat more fully by examples. In the Tsimshian language we find a very great number of adverbial elements which can not be considered as entirely independent, and which, without doubt, must be considered as elements modifying verbal ideas. On account of the very large number of these elements, the total number of verbs of motion seems to be somewhat restricted, although the total number of verbs that may be combined with these adverbial ideas is much larger than the total number of the adverbial ideas themselves. Thus, the number of adverbs appears to be fixed, while the number of verbs appears unlimited; and consequently we have the impression that the former are modifying elements, and that their discussion belongs to the grammar of the language, while the latter are words, and their discussion belongs to the lexicography of the language. The number of such modifying elements in Eskimo is even larger; and here the impression that the discussion of these elements belongs to the grammar of the language is increased by the fact that they can never take an initial position, and that they are not placed following a complete word, but are added to an element which, if pronounced by itself, would not give any sense.

Now, it is important to note that, in a number of languages, the number of the modifying elements may increase so much that it may become doubtful which element represents a series of ideas limited in number, and which represents an almost unlimited series of words belonging to the vocabulary. This is true, for instance, in Algonquian, where in almost all verbs several elements appear in conjunction, each in a definite position, but each group so numerous

that it would be entirely arbitrary to designate the one group as words modified by the other group, or vice versa.

The importance of this consideration for our purposes lies in the fact that it illustrates the lack of definiteness of the terms *stem* and *affix*. According to the ordinary terminology, affixes are elements attached to stems or words, and modifying them. This definition is perfectly acceptable as long as the number of modifying ideas is limited. When, however, the number of modifying elements becomes exceedingly large, we may well doubt which of the two is the modifier and which the modified, and the determination finally becomes entirely arbitrary. In the following discussions the attempt has been made to confine the terms *prefix*, *suffix*, and *affix* entirely to those cases where the number of ideas expressed by these elements is strictly limited. Wherever the number of combined elements becomes so large that they can not be properly classified, these terms have not been used, but the elements have been treated as co-ordinate.

Discussion of Grammatical Categories

From what has been said it appears that, in an objective discussion of languages, three points have to be considered: first, the constituent phonetic elements of the language; second, the groups of ideas expressed by phonetic groups; third, the methods of combining and modifying phonetic groups.

It seems desirable to discuss the second of these points somewhat more fully before taking up the description of the characteristics of American languages.

Grammarians who have studied the languages of Europe and western Asia have developed a system of categories which we are inclined to look for in every language. It seems desirable to show here in how far the system with which we are familiar is characteristic only of certain groups of languages, and in how far other systems may be substituted for it. It seems easiest to illustrate this matter by discussing first some of the characteristics of the Indo-European noun, pronoun, and verb, and then by taking up the wider aspects of this subject.

Nominal Categories

In the treatment of our noun we are accustomed to look for a number of fundamental categories. In most Indo-European languages, nouns are classified according to gender, they are modified by forms expressing singular and plural, and they also appear in syntactic combinations as cases. None of these apparently fundamental aspects of the noun are necessary elements of articulate speech.

GENDER

The history of the English language shows clearly that the gender of a noun may practically be suppressed without interfering with the clearness of expression. While we still find traces of gender in English, practically all inanimate objects have come to belong to one single gender. It is interesting to note that, in the languages of the world, gender is not by any means a fundamental category, and that nouns may not be divided into classes at all, or the point of view of classification may be an entirely different one. Thus the Bantu languages of Africa classify words into a great many distinct groups the significance of most of which is not by any means clear. The Algonquian of North America classify nouns as animate and inanimate, without, however, adhering strictly to the natural classification implied in these terms. Thus the small animals may be classified as inanimate, while certain plants may appear as animate. Some of the Siouan languages classify nouns by means of articles, and strict distinctions are made between animate moving and animate at rest, inanimate long, inanimate round, inanimate high, and inanimate collective objects. The Iroquois distinguish strictly between nouns designating men and other nouns. The latter may again be subdivided into a definite and indefinite group. The Uchee distinguish between members of the tribe and other human beings. In America, true gender is on the whole rare; it is found, perhaps, among a few of the languages of the lower Mississippi; it occurs in the same way as in most Indo-European languages in the Chinook of Columbia river, and to a more limited extent among some of the languages of the state of Washington and of British Columbia. Among North American languages, the Eskimo and Athapascan have no trace of a classification of nouns. The examples here given

show clearly that the sex principle, which underlies the classification of nouns in European languages, is merely one of a great many possible classifications of this kind.

PLURAL

Of a somewhat different character is the plural of Indo-European nouns. Because, for the purpose of clear expression, each noun must be expressed either as a singular or as a plural, it might seem that this classification is almost indispensable; but it is not difficult to show, by means of sentences, that, even in English, the distinction is not always made. For instance, in the sentence *The wolf has devoured the sheep*, it is not clear whether a single sheep is meant, or a plurality of sheep are referred to. Nevertheless, this would not, on the whole, be felt as an inconvenience, since either the context would show whether singular or plural is meant, or an added adjective would give the desired information.

While, according to the structure of our European languages, we always tend to look for the expression of singularity or plurality for the sake of clearness of expression, there are other languages that are entirely indifferent towards this distinction. A good example of this kind is the Kwakiutl. It is entirely immaterial to the Kwakiutl whether he says, *There is a house* or *There are houses*. The same form is used for expressing both ideas, and the idea of singularity and plurality must be understood either by the context or by the addition of a special adjective. Similar conditions prevail in the Athapascan languages and in Haida. In Siouan, also, a distinction between singularity and plurality is made only in the case of animate objects. It would seem that, on the whole, American languages are rather indifferent in regard to the clear expression of plurality, but that they tend to express much more rigidly the ideas of collectivity or distribution. Thus the Kwakiutl, who are rather indifferent to the expression of plurality, are very particular in denoting whether the objects spoken of are distributed here or there. When this is the case, the distribution is carefully expressed. In the same way, when speaking of fish, they express by the same term a single fish and a quantity of fish. When, however, they desire to say that these fish belong to different species, a distributive

form expressing this idea is made use of. A similar indifference to the idea of singular and plural may be observed in the pronouns of several languages, and will be noted later on.

On the other hand, the idea of number may be much more strongly emphasized than it is in the modern languages of Europe. The dual, as in Greek, is of common occurrence the world over; but it happens also that a trialis and paucalis—expressions for *three* and *a few*—are distinguished.

CASE

What is true of number is no less true of case. Psychologically, the substitution of prepositional expressions for cases would hardly represent a complete absence of the concept of cases. This is rather found in those languages in which the whole group of relations of the nouns of a sentence is expressed in the verb. When, for instance, in Chinook, we find expressions like *he her it with cut, man, woman, knife,* meaning *The man cut the woman with the knife,* we may safely say that the nouns themselves appear without any trace of case-relationship, merely as appositions to a number of pronouns. It is true that in this case a distinction is made in the pronoun between subject and object, and that, in this sense, cases are found, although not as nominal cases, but still as pronominal cases. The case-relation, however, is confined to the two forms of subject and object, since the oblique cases are expressed by pronominal objects, while the characteristic of each particular oblique relation is expressed by adverbial elements. In the same language, the genitive relation is eliminated by substituting for it possessive expressions, like, for instance, *the man, his house,* instead of *the man's house.* While, therefore, case-expressions are not entirely eliminated, their number, which in some European languages is considerable, may be largely reduced.

Thus we find that some of our nominal categories either do not occur at all, or occur only in very much reduced forms. On the other hand, we must recognize that other new categories may occur which are entirely foreign to our European languages. Classifications like those referred to before—such as animate and inanimate, or of nouns designating men, and other nouns; and, further, of nouns according to form—are rather foreign to us, although, in the connection of verb

and noun, form-classifications occur. Thus we do not say, *a tree is somewhere,* but *a tree stands;* not, *the river is in New York,* but *the river flows through New York.*

TENSE

Tense classes of nouns are not rare in American languages. As we may speak of *a future husband* or of *our late friend,* thus many Indian languages express in every noun its existence in presence, past, or future, which they require as much for clearness of expression as we require the distinction of singular and plural.

Personal Pronouns

The same lack of conformity in the principles of classification may be found in the pronouns. We are accustomed to speak of three persons of the pronoun, which occur both in the singular and in the plural. Although we make a distinction of gender for the third person of the pronoun, we do not carry out this principle of classification consistently in the other persons. The first and second persons and the third person plural have the same form for masculine, feminine, and neuter. A more rigid application of the sex system is made, for instance, in the language of the Hottentots of South Africa, in which sex is distinguished, not only in the third person, but also in the first and second persons.

Logically, our three persons of the pronoun are based on the two concepts of self and not-self, the second of which is subdivided, according to the needs of speech, into the two concepts of person addressed and person spoken of. When, therefore, we speak of a first person plural, we mean logically either self and person addressed, or self and person or persons spoken of, or, finally, self, person or persons addressed, and person or persons spoken of. A true first person plural is impossible, because there can never be more than one self. This logical laxity is avoided by many languages, in which a sharp distinction is made between the two combinations self and person or persons spoken to, or self and person or persons spoken of. I do not know of any language expressing in a separate form the combination of the three persons, probably because this idea readily coalesces with the idea of self and persons spoken to. These two forms are generally designated by the rather inaccurate term of

"inclusive" and "exclusive first person plural," by which is meant the first person plural, including or excluding the person addressed. The second and third persons form true plurals. Thus the principle of division of the pronouns is carried through in many languages more rigidly than we find it in the European group.

On the other hand, the lack of clear distinction between singular and plural may be observed also in the pronominal forms of a number of languages. Thus the Sioux do not know any pronominal distinction between the singular and plural of the second person, and only a very imperfect distinction between the third person singular and plural; while the first person singular and plural, according to the fundamental difference in their significance, are sharply distinguished. In some Siouan dialects we may well say that the pronominal object has only a first person singular, first person plural, and a second person, and that no other pronoun for the object occurs. Thus the system of pronouns may be reduced to a mere fragment of what we are accustomed to find.

Demonstrative Pronouns

In many cases, the analogy of the personal pronouns and of the demonstrative pronouns is rigid, the demonstrative pronoun having three persons in the same way as the personal pronoun. Thus the Kwakiutl will say, *the house near me* (this house), *the house near thee* (that house), *the house near him* (that house).

But other points of view are added to the principle of division corresponding to the personal pronoun. Thus, the Kwakiutl, and many other American languages, add to the pronominal concept just discussed that of visibility and invisibility, while the Chinook add the concepts of present and past. Perhaps the most exuberant development of the demonstrative idea is found among the Eskimo, where not only the ideas corresponding to the three personal pronouns occur, but also those of position in space in relation to the speaker,—which are specified in seven directions; as, center, above, below, in front, behind, right, left,—and expressing points of the compass in relation to the position of the speaker.

It must be borne in mind that the divisions which are mentioned here are all *necessary* parts of clear expression in the languages mentioned. For instance, in Kwakiutl it would be inconceivable to use an expression like our *that house*, which means in English *the single*

house away from the speaker. The Kwakiutl must express this idea in one of the following six forms:

The (singular or plural) house visible near me
invisible near me
visible near thee
invisible near thee
visible near him
invisible near him

while the Eskimo would express a term like *this man* as

This man near me
near thee
near him
behind me
in front of me
to the right of me
to the left of me
above me
below me, etc.

Verbal Categories

We can follow out similar differences in the verb. In our Indo-European languages we have expressions signifying persons, tenses, moods, and voices. The ideas represented by these groups are quite unevenly developed in various languages. In a great many cases the forms expressing the persons are expressed simply by a combination of the personal pronoun and the verb; while in other cases the phonetic complexes expressing personal relations are developed in an astonishing manner. Thus the Algonquian and the Eskimo possess special phonetic groups expressing definite relations between the subject and object which occur in transitive verbs. For example, in sentences like *I strike thee,* or *They strike me,* the combination of the pronouns *I — thee,* and *they — me,* are expressed by special phonetic equivalents. There are even cases in which the indirect objects (as in the sentence, *I send him to you*) may be expressed by a single form. The characteristic trait of the forms here referred to is, that the combined pronoun can not be reduced to its constituent elements, although historically it may have originated from combinations of separate forms. It is obvious that in cases in which the development

of the pronoun is as weak as in the Siouan languages, to which I have referred before, the definiteness of the pronominal forms of the verb, to which we are accustomed, is entirely lost. Thus it happens that in the Sioux the verb alone may be used as well for the more or less abstract idea of verbal action as for the third person of the indicative.

Much more fundamental are the existing differences in regard to the occurrence of tenses and modes. We are accustomed to verbal forms in which the tense is always expressed with perfect definiteness. In the sentence *The man is sick* we really express the idea, *The single definite man is sick at the present time.* This strict expression of the time relation of the occurrence is missing in many languages. The Eskimo, for instance, in expressing the same idea, will simply say, *single man sick*, leaving the question entirely open whether the man was sick at a previous time, is sick at the present time, or is going to be sick in the future. The condition here is similar to the one described before in relation to plurality. The Eskimo can, of course, express whether the man is sick at the present time, was sick, or is going to be sick, but the grammatical form of his sentences does not *require* the expression of the tense relation. In other cases the temporal ideas may be expressed with much greater nicety than we find in our familiar grammars. Generally, languages in which a multiplicity of tenses are found include in their form of expression certain modifications of the tense concept which might be called "semi-temporal," like inchoatives, which express the beginning of an action; duratives, which express the extent of time during which the action lasts; transitionals, which express the change of one state of being into another; etc. There is very little agreement in regard to the occurrence of such tenses, and the characteristics of many languages show that tenses are not by any means required for clear expression.

What is true of tenses is also true of modes. The number of languages which get along with a single mode, or at most with the indicative and imperative, is considerable; although, in this case also, the idea of subordination may be expressed if it seems desirable to do so.

The few examples that I have given here illustrate that many of the categories which we are inclined to consider as essential may be absent in foreign languages, and that other categories may occur as substitutes.

Interpretation of Grammatical Categories

When we consider for a moment what this implies, it will be recognized that in each language only a part of the complete concept that we have in mind is expressed, and that each language has a peculiar tendency to select this or that aspect of the mental image which is conveyed by the expression of the thought. To use again the example which I mentioned before, *The man is sick.* We express by this sentence, in English, the idea, *a definite single man at present sick.* In Kwakiutl this sentence would have to be rendered by an expression which would mean, in the vaguest possible form that could be given to it, *definite man near him invisible sick near him invisible.* Visibility and nearness to the first or second person might, of course, have been selected in our example in place of invisibility and nearness to the third person. An idiomatic expression of the sentence in this language would, however, be much more definite, and would require an expression somewhat like the following, *That invisible man lies sick on his back on the floor of the absent house.* In Eskimo, on the other hand, the same idea would be expressed by a form like (*single*) *man sick,* leaving place and time entirely indefinite. In Ponca, one of the Siouan dialects, the same idea would require a decision of the question whether the man is at rest or moving, and we might have a form like *the moving single man sick.* If we take into consideration further traits of idiomatic expression, this example might be further expanded by adding modalities of the verb; thus the Kwakiutl, whose language I have used several times as an example, would require a form indicating whether this is a new subject introduced in conversation or not; and, in case the speaker had not seen the sick person himself, he would have to express whether he knows by hearsay or by evidence that the person is sick, or whether he has dreamed it. It seems, however, better not to complicate our present discussion by taking into consideration the possibilities of exact expression that may be required in idiomatic forms of speech, but rather to consider only those parts of the sentence which, according to the morphology of the language, *must* be expressed.

We conclude from the examples here given that in a discussion of the characteristics of various languages different fundamental categories will be found, and that in a comparison of different languages it will be necessary to compare as well the phonetic characteristics as the characteristics of the vocabulary and those of the grammatical concepts in order to give each language its proper place.

III. CLASSIFICATION OF LANGUAGES

Origin of Dialects

In many cases the determination of the genetic relationship of languages is perfectly simple. Wherever we find close similarities in phonetics, in vocabularies, and in details of grammar, there can not be the slightest doubt that the languages that are being studied are varieties of the same ancestral form.

To a certain extent the differentiation of a single language into a number of dialects is spontaneous. When communication between peoples speaking the same tongue ceases, peculiarities of pronunciation will readily manifest themselves in one region or the other and may become permanent. In some cases these modifications of pronunciation may gradually increase and may become so radical that several quite different forms of the original language develop. At the same time words readily assume a new significance, and if the separation of the people should be accompanied by a differentiation of culture, these changes may proceed at a very rapid rate.

In cases of such phonetic changes and of modifications in the significance of words, a certain degree of regularity may always be observed, and for this reason the historical relationship between the new dialects and the older forms can always be readily established and may be compared to the modifications that take place in a series of generations of living beings.

Another form of modification may occur that is also analogous to biological transformations. We must recognize that the origin of language must not be looked for in human faculties that have once been active, but which have disappeared. As a matter of fact, new additions to linguistic devices and to linguistic material are constantly being made. Such spontaneous additions to a language may occur in one of the new dialects, while they do not occur in the other. These, although related to the structure of the older language, will be so entirely new in their character that they can not be directly related to the ancestral language.

It must also be considered that each of these dialects may incorporate new material. Nevertheless in all cases where the older material constitutes the bulk of the material of the language, its close relationship to the ancestral tongue will readily be recognized. In

all these cases, phonetics, details of grammatical structure, and vocabulary will show far-reaching similarities.

Comparison of Distinct Languages

The problem becomes much more difficult when the similarities in any of these traits become less pronounced. With the extension of our knowledge of primitive languages, it has been found that cases are not rare in which languages spoken in certain continuous areas show radical differences in vocabulary and in grammatical form, but close similarity in their phonetic elements. In other cases the similarity of phonetic elements may be less pronounced, but there may exist a close similarity in structural details. Again, many investigators have pointed out peculiar analogies in certain words without being able to show that grammatical form and general phonetic character coincide. Many examples of such conditions may be given. In America, for instance, the phonetic similarity of the languages spoken between the coast of Oregon and Mount St. Elias is quite striking. All these languages are characterized by the occurrence of a great many peculiar *k* sounds and peculiar *l* sounds, and by their tendency towards great stress of articulation, and, in most cases, towards a clustering of consonants. Consequently to our ear these languages sound rough and harsh. Notwithstanding these similarities, the grammatical forms and the vocabularies are so utterly distinct that a common origin of the languages of this area seems entirely out of the question. A similar example may be given from South Africa, where the Bantu negroes, Bushmen, and Hottentots utilize some peculiar sounds which are produced by inspiration—by drawing in the breath, not by expelling it—and which are ordinarily called "clicks." Notwithstanding this very peculiar common trait in their languages, there is no similarity in grammar and hardly any in vocabulary.

We might also give the example of the Siouan and the Iroquois languages of North America, two stocks that have been in proximity, and which are characterized by the occurrence of numerous nasalized vowels; or the phonetic characteristics of Californian languages, which sound to our ear euphonious, and are in strong contrast to the languages of the North Pacific coast.

It must be said that, on the whole, such phonetic characteristics of a limited area appear in their most pronounced form when we

compare the whole region with the neighboring districts. They form a unit rather by contrast with foreign phonetics than when compared among themselves, each language having its own peculiar characteristics in a group of this kind. Thus, the Tlingit of the North Pacific coast differs very much from the Chinook of Columbia river. Nevertheless, when both languages are compared to a language of southern California, the Sioux or the Algonquian, traits that are common to both of them appear to quite a marked degree.

What is true of phonetics is also true of grammatical form, and this is evidently a characteristic trait of the languages of the whole world. In North America particularly such groups of languages can be readily recognized. A more detailed discussion of this problem will be given in another place, and it will be sufficient to state here, that languages—like, for instance, the Athapascan, Tlingit, and Haida—which are spoken in one continuous area on the northwest coast of our continent show certain common characteristics when compared with neighboring languages like the Eskimo, Algonquian, and Tsimshian. In a similar way, a number of Californian languages, or languages of southern British Columbia, and languages like the Pawnee and Iroquois, each form a group characterized by certain traits which are not found in other languages.

In cases where such morphological similarities occur without a corresponding similarity of vocabulary, it becomes exceedingly difficult to determine whether these languages may be considered as descendants of one parent language; and there are numerous cases in which our judgment must be suspended, because, on the one hand, these similarities are far-reaching, while, on the other hand, such radical differences are found that we can not account for them without assuming the introduction of an entirely foreign element.

Similar phenomena have recently induced P. W. Schmidt to consider the languages of Farther India and of Malaysia as related; and the same problem has been discussed by Lepsius, and again by Meinhoff, in reference to the relation of the languages of the Hottentot to a number of east African languages and to the languages of the Hamitic peoples of North Africa.

Difficulties also arise in cases where a considerable number of similar words are found without a corresponding similarity of grammatical forms, so that we may be reluctant to combine two such languages, notwithstanding their similarities of vocabulary.

The comparison of vocabularies offers peculiar difficulties in American languages. Unfortunately, our knowledge of American languages is very limited, and in many cases we are confined to collections of a few hundred words, without any information in regard to grammatical forms. Owing to the strong tendency of many American languages to form compound words or derivatives of various kinds, it is very difficult in vocabularies of this kind to recognize the component elements of words, and often accidental similarities may obtrude themselves which a thorough knowledge of the languages would prove to be of no significance whatever.

Setting aside this practical difficulty, it may happen quite often that in neighboring languages the same term is used to designate the same object, owing, not to the relationship of the languages, but to the fact that the word may be a loan word in several of them. Since the vocabularies which are ordinarily collected embrace terms for objects found in most common use, it seems most likely that among these a number of loan words may occur.

Even when the available material is fuller and more thoroughly analyzed, doubt may arise regarding the significance of the apparent similarities of vocabulary.

Mutual Influences of Languages

In all these cases the final decision will depend upon the answer to the questions in how far distinct languages may influence one another, and in how far a language without being subject to foreign influences may deviate from the parental type. While it seems that the time has hardly come when it is possible to answer these questions in a definite manner, the evidence seems to be in favor of the existence of far-reaching influences of this kind.

Phonetic Influences

This is perhaps most clearly evident in the case of phonetics. It is hardly conceivable why languages spoken in continuous areas, and entirely distinct in vocabulary and in grammatical structure, should partake of the same phonetic characteristics, unless, by imitation, certain phonetic traits may be carried beyond a single linguistic stock. While I do not know that historical evidence of such occurrences has been definitely given, the phenomenon as it occurs in South Africa, among the Bantu and Hottentot, admits of hardly

any other explanation. And the same is true, to a more or less pronounced extent, among other distinct but neighboring languages.

The possibility of such a transfer of sounds can not be denied. Among the American Indians, for instance—where intermarriages between individuals belonging to different tribes are frequent; where slave women raise their own and their masters' children; and where, owing to the small number of individuals constituting the tribe, individuals who have mastered several distinct languages are not by any means rare—ample opportunity is given for one language to exert its phonetic influence over another. Whether this explanation is adequate, is a question that remains to be decided by further historical studies.[1]

Grammatical Influences

Influence of the syntax of one language upon another, and even, to a certain extent, of the morphology of one language upon another, is also probable. The study of the languages of Europe has proved clearly the deep influence exerted by Latin upon the syntax of all the modern European languages. We can also recognize how certain syntactic forms of expression occur in neighboring languages on our American continent. To give an instance of this kind, we find that, in the most diverse languages of the North Pacific coast, commands are given in the periphrastic form, *It would be good if you did so and so;* and in many cases this periphrastic form has been substituted entirely for the ordinary imperative. Thus it may well be that groups of psychological concepts which are expressed by means of grammatical forms have developed in one language under the influence of another; and it is difficult to say, if we once admit such influence, where the limit may be to the modifications caused by such processes.

On the other hand, it seems exceedingly difficult to understand why the most fundamental morphological traits of a language should disappear under the influence of another form of thought as exhibited in another language. This would mean that the greater number of grammatical forms would disappear, and entirely new categories develop. It certainly can not be denied that far-reaching modifications of this kind are possible, but it will require the most cautious proof in every single case before their existence can be accepted.

[1] See also p. 53.

Cases of the introduction of new suffixes in European languages are not by any means rare. Thus, the ending *-able* of French words has been adopted so frequently into English that the ending itself has attained a certain independence, and we can form words like *eatable*, or even *get-at-able*, in which the ending, which was originally French, is added to an English word. In a similar way the French verbal ending *-ir*, combined with the German infinitive ending in *-en*, is used in a large number of German words as though it were a purely German ending. I do not know, however, of any observations which would point to a radical modification of the morphological traits of a language through the influence of another language.

Lexicographic Influences

While the phonetic influence of distinct languages upon one another and the modification of morphological traits in different languages are still obscure, the borrowing of words is very common, and sometimes reaches to an enormous extent. The vocabulary of English is an excellent example of such extensive amalgamation of the vocabularies of quite distinct languages, and the manner by which it has been attained is instructive. It is not only that Anglo-Saxon adopted large parts of the vocabulary of the Norman conquerors, that it took over a few terms of the older Celtic language, and adopted some words from the Norse invaders; but we find also, later, introductions from Latin and Greek, which were introduced through the progress of the arts and sciences, and which filtered down from the educated to the uneducated classes. Furthermore, numerous terms were adopted from the less civilized peoples with whom the English-speaking people came into contact in different parts of the world. Thus, the Australian and the Indian-English have each adopted a great many native terms, quite a number of which have found their way into colloquial and written modern English. This phenomenon is so common, and the processes by which new words enter into a language are so obvious, that a full discussion is not required. Another example that may be mentioned here is that of the Turkish language, which has adopted a very large number of Arab words.

In such a transfer of the vocabulary of one language into another, words undergo, of course, far-reaching changes. These may be

partly due to phonetic difficulties, and consist in the adaptation of an unfamiliar group of sounds to the familiar similar sounds of the language by which the word has been adopted. There may be assimilations by which the grammatical form of a word is made similar to more familiar forms. Furthermore, changes in the significance of the word are common, and new derivations may be formed from the word after it has once become entirely familiar, like other native words.

In this respect a number of American languages seem to behave curiously when compared with European languages. Borrowing of words in Europe is particularly common when a new object is first introduced. In almost all these cases the foreign designation is taken over with more or less fundamental phonetic modifications. Examples of this kind are the words *tobacco, canoe, maize, chocolate*—to take as illustration a few words borrowed from American languages. American natives, on the other hand, do not commonly adopt words in this manner, but much more frequently invent descriptive words by which the new object is designated. Thus the Tsimshian of British Columbia designate rice by a term meaning *looking like maggots.* The Kwakiutl call a steamboat *fire on its back moving on the water.* The Eskimo call cut tobacco *being blown upon.* Words of this type are in wide use; nevertheless, loan words taken from English are not by any means rare. The terms *biscuit, dollar, coffee, tea*, are found in a great many Indian languages. The probable reason why descriptive words are more common in American languages than in European languages lies in the frequent occurrence of descriptive nouns.

We find, therefore, that there are two sets of phenomena which must be considered in the classification of languages: (1) differences which can easily be proved to be derived from modifications of a single ancestral language; and (2) similarities which can not be thus explained, and some of which may be due to the effects of mixture.

Origin of Similarities; by Dissemination or by Parallel Development

Before we proceed with this consideration, we have to discuss the two logical possibilities for such similarities. Either they may be due to dissemination from a common source, so that they origi-

nated only a single time, and were diffused by the influence of one people upon another; or it may be that they are due to an independent origin in many parts of the world.

This alternative is present in the explanation of all ethnic phenomena, and is one of the fundamental questions in regard to which the ethnologist, as well as the investigator of languages, must be clear. In the older considerations of the position of the American race among the races of man, for instance, it has always been assumed that occurrence of similar phenomena among the peoples of the Old World and of the New proved genetic relationship. It is obvious that this method of proving relationship assumes that, wherever similarities occur, they must have been carried by the same people over different parts of the world, and that therefore they may be considered as proof of common descent. The method thus applied does not take into consideration the possibility of a gradual diffusion of cultural elements from one people to another, and the other more fundamental one of a parallel but independent development of similar phenomena among different races in remote parts of the world. Since such development is a logical possibility, proofs of genetic relationship must not be based on the occurrence of sporadic resemblances alone.

A final decision of this vexed problem can be given only by historical evidence, which is hardly ever available, and for this reason the systematic treatment of the question must always proceed with the greatest caution.

The cases in which isolated similarities of ethnic phenomena in remote parts of the world have been recorded are numerous, and many of these are of such a character that transmission cannot be proved at all. If, for instance, the Indians of South America use sacred musical instruments, which must not be seen by women, and if apparently the same custom prevails among the Australian aborigines, it is inadmissible to assume the occurrence of what seems to be the same custom in these two remote districts as due to transmission. It is perfectly intelligible that the custom may have developed independently in each continent. On the other hand, there are many cases in which certain peculiar and complex customs are distributed over large continuous areas, and where transmission over large portions of this area is plausible. In this case, even if independent origin had taken place in different parts of the district in question, the present

distribution is fully explained by the assumption of extended dissemination.

It is true, for instance, in the case of similar traditions which are found distributed over large districts. An example of this is the story of two girls who noticed two stars, a bright one and a small one, and wished these stars for their husbands. The following morning they found themselves in the sky, married to the stars, and later on tried to return to the earth by letting themselves down through a hole in the sky. This rather complex tale is found distributed over the American continent in an area extending from Nova Scotia to the mouth of the Mississippi river and westward to the Rocky mountains, and in places even on the Pacific ocean, for instance, in Alaska and in the state of Washington. It would seem difficult to assume, in a case of this kind, the possibility of an independent invention of the tale at a number of distinct points; but it must be assumed that, after the tale had once attained its present form, it spread by dissemination over that part of the continent where it is now found.

In extreme cases the conclusions drawn from these two types of explanation seem quite unassailable; but there are naturally a very large number of others in which the phenomenon in question is neither sufficiently complex, nor distributed over a sufficiently large continuous area, to lead with certainty to the conclusion of an origin by dissemination; and there are others where the sporadic distributions seem curiously arranged, and where vague possibilities of contact occur. Thus it happens often that a satisfactory conclusion cannot be reached.

We must also bear in mind that in many cases a continuous distribution may once have existed, but may have become discontinuous, owing to the disappearance of the phenomena in question in intermediate regions. If, however, we want to follow a safe method, we must not admit such causes for sporadic distribution, unless they can be definitely proved by other evidence; otherwise, the way is open to attempts to bring into contact practically every part of the world with all others.

The general occurrence of similar ethnic phenomena in remote parts of the world admits also of the explanation of the existence of a certain number of customs and habits that were common to large parts of mankind at a very early period, and which have maintained themselves here and there up to the present time. It can

not be denied that this point of view has certain elements in its favor; but in the present state of our knowledge we can hardly say that it would be possible to prove or to disprove it.

We meet the same fundamental problem in connection with similarities of languages which are too vague to be considered as proofs of genetic relationship. That these exist is obvious. Here we have not only the common characteristics of all human language, which have been discussed in the preceding chapter, but also certain other similarities which must here be considered.

Influence of Environment on Language

It has often been suggested that similarities of neighboring languages and customs may be explained by the influence of environment. The leading thought in this theory is, that the human mind, under the stress of similar conditions, will produce the same results; that consequently, if the members of the same race live in the same surroundings, they will produce, for instance, in their articulate speech, the same kind of phonetics, differing perhaps in detail according to the variations of environment, but the same in their essential traits. Thus it has been claimed that the moist and stormy climate of the North Pacific coast caused a chronic catarrhal condition among the inhabitants, and that to this condition is due the guttural pronunciation and harshness of their languages; while, on the other hand, the mildness of the California climate has been made responsible for the euphonious character of the languages of that district.

I do not believe that detailed investigations in any part of the world would sustain this theory. We might demand proof that the same language, when distributed over different climates, should produce the same kind of modifications as those here exemplified; and we might further demand that, wherever similar climates are found, at least a certain approach to similarity in the phonetics of the languages should occur. It would be difficult to prove that this is the case, even if we should admit the excuse that modifying influences have obscured the original similarity of phonetic character. Taking, for instance, the arctic people of the Old and New Worlds as a unit, we find fundamentally different traits in the phonetics of the Eskimo, of the Chukchee of eastern Siberia, and of other arctic Asiatic and European peoples. The phonetics of the deserts of Asia and South

Africa and of southwestern North America are not by any means the same. The prairie tribes of North America, although living in nearly the same climate, over a considerable area, show remarkable differences in the phonetics of their languages; and, on the other hand, the tribes belonging to the Salish family who live east of the Rocky mountains, in the interior of British Columbia, speak a language that is not less harsh than that of their congeners on the northern coast of the state of Washington. In any attempt at arranging phonetics in accordance with climate, the discrepancies would be so numerous, that an attempt to carry out the theory would lead to the necessity of explaining exceptions rather than examples corroborating its correctness.

What is true in regard to phonetics is no less true in regard to morphology and vocabulary. I do not think that it has ever been claimed that similar words must necessarily originate under the stress of the same conditions, although, if we admit the correctness of the principle, there is no reason for making an exception in regard to the vocabulary.

I think this theory can be sustained even less in the field of linguistics than in the field of ethnology. It is certainly true that each people accommodates itself to a certain extent to its surroundings, and that it even may make the best possible use of its surroundings in accordance with the fundamental traits of its culture, but I do not believe that in any single case it will be possible to explain the culture of a people as due to the influence of its surroundings. It is self-evident that the Eskimo of northern arctic America do not make extended use of wood, a substance which is very rare in those parts of the world, and that the Indians of the woodlands of Brazil are not familiar with the uses to which snow may be put. We may even go further, and acknowledge that, after the usefulness of certain substances, plants, and animals—like bamboo in the tropics, or the cedar on the North Pacific coast of America, or ivory in the arctic regions, or the buffalo on the plains of North America—has once been recognized, they will find the most extended use, and that numerous inventions will be made to expand their usefulness. We may also recognize that the distribution of the produce of a country, the difficulties and ease of travel, the necessity of reaching certain points, may deeply influence the habits of the people. But with all this, to geographical conditions cannot be ascribed more than a modifying influence upon

the fundamental traits of culture. If this were not true, the peculiar facts of distribution of inventions, of beliefs, of habits, and of other ethnological phenomena, would be unintelligible.

For instance, the use of the underground house is distributed, in America and Asia, over the northern parts of the plateaus to parts of the Great Plains, northward into the arctic region; and crossing Bering strait we find it in use along the Pacific coast of Asia and as far south as northern Japan, not to speak of the subterranean dwellings of Europe and North Africa. The climate of this district shows very considerable differences, and the climatic necessity for underground habitations does not exist by any means in many parts of the area where they occur.

In a similar area we find the custom of increasing the elasticity of the bow by overlaying it with sinew. While this procedure may be quite necessary in the arctic regions, where no elastic wood is available, it is certainly not necessary in the more southern parts of the Rocky mountains, or along the east coast of Asia, where a great many varieties of strong elastic wood are available. Nevertheless the usefulness of the invention seems to have led to its general application over an extended district.

We might also give numerous examples which would illustrate that the adaptation of a people to their surroundings is not by any means perfect. How, for instance, can we explain the fact that the Eskimo, notwithstanding their inventiveness, have never thought of domesticating the caribou, while the Chukchee have acquired large reindeer-herds? Why, on the other hand, should the Chukchee, who are compelled to travel about with their reindeer-herds, use a tent which is so cumbersome that a train of many sledges is required to move it, while the Eskimo have reduced the frame of their tents to such a degree that a single sledge can be used for conveying it from place to place?

Other examples of a similar kind are the difference in the habitations of the arctic Athapascan tribes and those of the Eskimo. Notwithstanding the rigor of the climate, the former live in light skin tents, while the Eskimo have succeeded in protecting themselves efficiently against the gales and the snows of winter.

What actually seems to take place in the movements of peoples is, that a people who settle in a new environment will first of all cling to their old habits and only modify them as much as is abso-

lutely necessary in order to live fairly comfortably, the comfort of life being generally of secondary importance to the inertia or conservatism which prevents a people from changing their settled habits, that have become customary to such an extent that they are more or less automatic, and that a change would be felt as something decidedly unusual.

Even when a people remain located in the same place, it would seem that historical influences are much stronger than geographical influences. I am inclined, for instance, to explain in this manner the differences between the cultures of the tribes of arctic Asia and of arctic America, and the difference in the habits of the tribes of the southern plateaus of North America when compared with those of the northern plateaus of North America. In the southern regions the influence of the Pueblos has made itself felt, while farther to the north the simpler culture of the Mackenzie basin gives the essential tone to the culture of the people.

While fully acknowledging the importance of geographical conditions upon life, I do not believe that they can be given a place at all comparable to that of culture as handed down, and to that of the historical influence exerted by the cultures of surrounding tribes; and it seems likely that the less direct the influence of the surroundings is, the less also can it be used for accounting for peculiar ethnological traits.

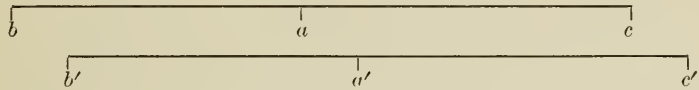
So far as language is concerned, the influence of geographical surroundings and of climate seems to be exceedingly remote; and as long as we are not even able to prove that the whole organism of man, and with it the articulating organs, are directly influenced by geographical environment, I do not think we are justified in considering this element as an essential trait in the formation or modification of human speech, much less as a cause which can be used to account for the similarities of human speech in neighboring areas.

Influence of Common Psychic Traits

Equally uncertain seems to be the resort to the assumption of peculiar psychic traits that are common to geographical divisions of the same race. It may be claimed, for instance, that the languages of the Athapascan, Tlingit, and Haida, which were referred to before as similar in certain fundamental morphological traits, are alike,

for the reason that these three peoples have certain psychical traits in common which are not shared in by other American tribes.

It seems certainly admissible to assume slight differences in the psychical make-up among groups of a race which are different in regard to their physical type. If we can prove by means of anatomical investigations that the bodily form, and with it the nervous system and the brain of one part of a race show differences from the analogous traits of another part of the race, it seems justifiable to conclude that the physical differentiation may be accompanied by psychic differences. It must, however, be borne in mind that the extent of physical difference is always exceedingly slight, and that, within the limits of each geographical type, variations are found which are great as compared to the total differences between the averages of the types. To use a diagram:



If a represents the middle point of one type and b and c its extremes, a' the average of another type and b' and c' its extremes, and if these types are so placed, one over the other, that types in the second series correspond to those in the first series vertically over them, then it will be seen that the bulk of the population of the two types will very well coincide, while only the extremes will be more frequent in the one group than in the other. That is to say, the physical difference is not a difference in kind, but a difference more or less in degree, and a considerable overlapping of the types necessarily takes place.

If this is true in regard to the physical type, and if, furthermore, the difference in psychical types is inferred only from the observed differences of the physical types, then we must assume that the same kind of overlapping will take place in the psychical types. The differences with which we are dealing can, therefore, be only very slight, and it seems hardly likely that these slight differences could lead to radically diverse results.

As a matter of fact, the proof which has been given before,[1] that the same languages may be spoken by entirely distinct types, shows clearly how slight the effect of difference in anatomical type upon

[1] See p. 9.

language is at the present time, and there is no reason to presume that it has ever been greater. Viewing the matter from this standpoint, the hereditary mental differences of various groups of mankind, particularly within the same race, seem to be so slight that it would be very difficult to believe that they account in any way for the fundamental differences in the traits of distinct languages.

Uncertainty of Definition of Linguistic Families

The problem thus remains unsolved how to interpret the similarities of distinct languages in cases where the similarities are no longer sufficient to prove genetic relationship. From what has been said we may conclude that, even in languages which can easily be proved to be genetically related, independent elements may be found in various divisions. Such independent elements may be due partly to new tendencies which develop in one or the other of the dialects, or to foreign influence. It is quite conceivable that such new tendencies and foreign influences may attain such importance that the new language may still be considered as historically related to the ancestral family, but that its deviations, due to elements that are not found in the ancestral language, have become so important that it can no longer be considered as a branch of the older family.

Thus it will be seen that the concept of a linguistic family can not be sharply defined; that even among the dialects of one linguistic family, more or less foreign material may be present, and that in this sense the languages, as has been pointed out by Paul,[1] are not, in the strict sense of the term, descendants of a single ancestral family.

Thus the whole problem of the final classification of languages in linguistic families that are without doubt related, seems destined to remain open until our knowledge of the processes by which distinct languages are developed shall have become much more thorough than it is at the present time. Under these circumstances we must confine ourselves to classifying American languages in those linguistic families for which we can give a proof of relationship that can not possibly be challenged. Beyond this point we can do no more than give certain definite classifications in which the traits common to certain groups of languages are pointed out, while the decision as to the significance of these common traits must be left to later times.

[1] Paul, Principien der Sprachgeschichte.

IV. LINGUISTICS AND ETHNOLOGY

It seems desirable to say a few words on the function of linguistic researches in the study of the ethnography of the Indians.

Practical Need of Linguistic Studies for Ethnological Purposes

First of all, the purely practical aspect of this question may be considered. Ordinarily, the investigator who visits an Indian tribe is not able to converse with the natives themselves and to obtain his information first-hand, but he is obliged to rely more or less on data transmitted by interpreters, or at least by the help of interpreters. He may ask his question through an interpreter, and receive again through his mouth the answer given by the Indians. It is obvious that this is an unsatisfactory method, even when the interpreters are good; but, as a rule, the available men are either not sufficiently familiar with the English language, or they are so entirely out of sympathy with the Indian point of view, and understand the need of accuracy on the part of the investigator so little, that information furnished by them can be used only with a considerable degree of caution. At the present time it is possible to get along in many parts of America without interpreters, by means of the trade-jargons that have developed everywhere in the intercourse between the whites and the Indians. These, however, are also a very unsatisfactory means of inquiring into the customs of the natives, because, in some cases, the vocabulary of the trade-languages is extremely limited, and it is almost impossible to convey information relating to the religious and philosophic ideas or to the higher aspects of native art, all of which play so important a part in Indian life. Another difficulty which often develops whenever the investigator works with a particularly intelligent interpreter is, that the interpreter imbibes too readily the views of the investigator, and that his information, for this reason, is strongly biased, because he is not so well able to withstand the influence of formative theories as the trained investigator ought to be. Anyone who has carried on work with intelligent Indians will recall instances of this kind, where the interpreter may have formulated a theory based on the questions that have been put through him, and has interpreted his answers

under the guidance of his preconceived notions. All this is so obvious that it hardly requires a full discussion. Our needs become particularly apparent when we compare the methods that we expect from any investigator of cultures of the Old World with those of the ethnologist who is studying primitive tribes. Nobody would expect authoritative accounts of the civilization of China or of Japan from a man who does not speak the languages readily, and who has not mastered their literatures. The student of antiquity is expected to have a thorough mastery of the ancient languages. A student of Mohammedan life in Arabia or Turkey would hardly be considered a serious investigator if all his knowledge had to be derived from second-hand accounts. The ethnologist, on the other hand, undertakes in the majority of cases to elucidate the innermost thoughts and feelings of a people without so much as a smattering of knowledge of their language.

It is true that the American ethnologist is confronted with a serious practical difficulty, for, in the present state of American society, by far the greater number of customs and practices have gone out of existence, and the investigator is compelled to rely upon accounts of customs of former times recorded from the mouths of the old generation who, when young, still took part in these performances. Added to this he is confronted with the difficulty that the number of trained investigators is very small, and the number of American languages that are mutually unintelligible exceedingly large, probably exceeding three hundred in number. Our investigating ethnologists are also denied opportunity to spend long continuous periods with any particular tribe, so that the practical difficulties in the way of acquiring languages are almost insuperable. Nevertheless, we must insist that a command of the language is an indispensable means of obtaining accurate and thorough knowledge, because much information can be gained by listening to conversations of the natives and by taking part in their daily life, which, to the observer who has no command of the language, will remain entirely inaccessible.

It must be admitted that this ideal aim is, under present conditions, entirely beyond our reach. It is, however, quite possible for the ethnographer to obtain a theoretical knowledge of native languages that will enable him to collect at least part of the information that could be best obtained by a practical knowledge of the language. Fortunately, the Indian is easily misled, by the ability of the observer

to read his language, into thinking that he is also able to understand what he reads. Thus, in taking down tales or other records in the native language, and reading them to the Indians, the Indian always believes that the reader also understands what he pronounces, because it is quite inconceivable to him that a person can freely utter the sentences in his language without clearly grasping their meaning. This fact facilitates the initial stages of ethnographic information in the native languages, because, on the whole, the northern Indians are eager to be put on record in regard to questions that are of supreme interest to them. If the observer is capable of grasping by a rapid analysis the significance of what is dictated to him, even without being able to express himself freely in the native language, he is in a position to obtain much information that otherwise would be entirely unobtainable. Although this is wholly a makeshift, still it puts the observer in an infinitely better position than that in which he would be without any knowledge whatever of the language. First of all, he can get the information from the Indians first-hand, without employing an interpreter, who may mislead him. Furthermore, the range of subjects on which he can get information is considerably increased, because the limitations of the linguistic knowledge of the interpreter, or those of the trade-language, are eliminated. It would seem, therefore, that under present conditions we are more or less compelled to rely upon an extended series of texts as the safest means of obtaining information from the Indians. A general review of our ethnographic literature shows clearly how much better is the information obtained by observers who have command of the language, and who are on terms of intimate friendship with the natives, than that obtained through the medium of interpreters.

The best material we possess is perhaps contained in the naïve outpourings of the Eskimo, which they write and print themselves, and distribute as a newspaper, intended to inform the people of all the events that are of interest. These used to contain much mythological matter and much that related to the mode of life of the people. Other material of similar character is furnished by the large text collections of the Ponca, published by the late James Owen Dorsey; although many of these are influenced by the changed conditions under which the people now live. Some older records on the Iroquois, written by prominent members of the tribe, also deserve attention; and among the most recent literature the descriptions of the

Sauk and Fox by Dr. William Jones are remarkable on account of the thorough understanding that the author has reached, owing to his mastery of the language. Similar in character, although rendered entirely in English, are the observations of Mr. James Teit on the Thompson Indians.

In some cases it has been possible to interest educated natives in the study of their own tribes and to induce them to write down in their own language their observations. These, also, are much superior to English records, in which the natives are generally hampered by the lack of mastery of the foreign language.

While in all these cases a collector thoroughly familiar with the Indian language and with English might give us the results of his studies without using the native language in his publications, this is quite indispensable when we try to investigate the deeper problems of ethnology. A few examples will show clearly what is meant. When the question arises, for instance, of investigating the poetry of the Indians, no translation can possibly be considered as an adequate substitute for the original. The form of rhythm, the treatment of the language, the adjustment of text to music, the imagery, the use of metaphors, and all the numerous problems involved in any thorough investigation of the style of poetry, can be interpreted only by the investigator who has equal command of the ethnographical traits of the tribe and of their language. The same is true in the investigation of rituals, with their set, more or less poetic phrases, or in the investigation of prayers and incantations. The oratory of the Indians, a subject that has received much attention by ethnologists, is not adequately known, because only a very few speeches have been handed down in the original. Here, also, an accurate investigation of the method of composition and of the devices used to reach oratorical effect, requires the preservation of speeches as rendered in the original language.

There are also numerous other features of the life of the Indians which can not be adequately presented without linguistic investigation. To these belong, for instance, the discussion of personal, tribal, and local names. The translations of Indian names which are popularly known—like Sitting-Bull, Afraid-Of-His-Horse, etc.—indicate that names possess a deeper significance. The translations, however, are so difficult that a thorough linguistic knowledge is required in order to explain the significance adequately.

In all the subjects mentioned heretofore, a knowledge of Indian languages serves as an important adjunct to a full understanding of the customs and beliefs of the people whom we are studying. But in all these cases the service which language lends us is first of all a practical one—a means to a clearer understanding of ethnological phenomena which in themselves have nothing to do with linguistic problems.

Theoretical Importance of Linguistic Studies

Language a Part of Ethnological Phenomena in General

It seems, however, that a theoretical study of Indian languages is not less important than a practical knowledge of them; that the purely linguistic inquiry is part and parcel of a thorough investigation of the psychology of the peoples of the world. If ethnology is understood as the science dealing with the mental phenomena of the life of the peoples of the world, human language, one of the most important manifestations of mental life, would seem to belong naturally to the field of work of ethnology, unless special reasons can be adduced why it should not be so considered. It is true that a practical reason of this kind exists, namely, the specialization which has taken place in the methods of philological research, which has progressed to such an extent that philology and comparative linguistics are sciences which require the utmost attention, and do not allow the student to devote much of his time to other fields that require different methods of study. This, however, is no reason for believing that the results of linguistic inquiry are unimportant to the ethnologist. There are other fields of ethnological investigation which have come to be more or less specialized, and which require for their successful treatment peculiar specialization. This is true, for instance, of the study of primitive music, of primitive art, and, to a certain extent, of primitive law. Nevertheless, these subjects continue to form an important part of ethnological science.

If the phenomena of human speech seem to form in a way a subject by itself, this is perhaps largely due to the fact that the laws of language remain entirely unknown to the speakers, that linguistic phenomena never rise into the consciousness of primitive man, while all other ethnological phenomena are more or less clearly subjects of conscious thought.

The question of the relation of linguistic phenomena to ethnological phenomena, in the narrower sense of the term, deserves, therefore, special discussion.

Language and Thought

First of all, it may be well to discuss the relation between language and thought. It has been claimed that the conciseness and clearness of thought of a people depend to a great extent upon their language. The ease with which in our modern European languages we express wide abstract ideas by a single term, and the facility with which wide generalizations are cast into the frame of a simple sentence, have been claimed to be one of the fundamental conditions of the clearness of our concepts, the logical force of our thought, and the precision with which we eliminate in our thoughts irrelevant details. Apparently this view has much in its favor. When we compare modern English with some of those Indian languages which are most concrete in their formative expression, the contrast is striking. When we say *The eye is the organ of sight*, the Indian may not be able to form the expression *the eye*, but may have to define that the eye of a person or of an animal is meant. Neither may the Indian be able to generalize readily the abstract idea of an eye as the representative of the whole class of objects, but may have to specialize by an expression like *this eye here*. Neither may he be able to express by a single term the idea of *organ*, but may have to specify it by an expression like *instrument of seeing*, so that the whole sentence might assume a form like *An indefinite person's eye is his means of seeing*. Still, it will be recognized that in this more specific form the general idea may be well expressed. It seems very questionable in how far the restriction of the use of certain grammatical forms can really be conceived as a hindrance in the formulation of generalized ideas. It seems much more likely that the lack of these forms is due to the lack of their need. Primitive man, when conversing with his fellowman, is not in the habit of discussing abstract ideas. His interests center around the occupations of his daily life; and where philosophic problems are touched upon, they appear either in relation to definite individuals or in the more or less anthropomorphic forms of religious beliefs. Discourses on qualities without connection with the object to which the qualities belong, or of activities or states disconnected from the idea of the actor or the subject being in a

certain state, will hardly occur in primitive speech. Thus the Indian will not speak of goodness as such, although he may very well speak of the goodness of a person. He will not speak of a state of bliss apart from the person who is in such a state. He will not refer to the power of seeing without designating an individual who has such power. Thus it happens that in languages in which the idea of possession is expressed by elements subordinated to nouns, all abstract terms appear always with possessive elements. It is, however, perfectly conceivable that an Indian trained in philosophic thought would proceed to free the underlying nominal forms from the possessive elements, and thus reach abstract forms strictly corresponding to the abstract forms of our modern languages. I have made this experiment, for instance, with the Kwakiutl language of Vancouver Island, in which no abstract term ever occurs without its possessive elements. After some discussion, I found it perfectly easy to develop the idea of the abstract term in the mind of the Indian, who will state that the word without a possessive pronoun gives a sense, although it is not used idiomatically. I succeeded, for instance, in this manner, in isolating the terms for *love* and *pity*, which ordinarily occur only in possessive forms, like *his love for him* or *my pity for you*. That this view is correct may also be observed in languages in which possessive elements appear as independent forms, as, for instance, in the Siouan languages. In these, pure abstract terms are quite common.

There is also evidence that other specializing elements, which are so characteristic of many Indian languages, may be dispensed with when, for one reason or another, it seems desirable to generalize a term. To use the example of the Kwakiutl language, the idea *to be seated* is almost always expressed with an inseparable suffix expressing the place in which a person is seated, as *seated on the floor of the house, on the ground, on the beach, on a pile of things*, or *on a round thing*, etc. When, however, for some reason, the dea of the state of sitting is to be emphasized, a form may be used which expresses simply *being in a sitting posture*. In this case, also, the device for generalized expression is present, but the opportunity for its application arises seldom, or perhaps never. I think what is true in these cases is true of the structure of every single language. The fact that generalized forms of expression are not

used does not prove inability to form them, but it merely proves that the mode of life of the people is such that they are not required; that they would, however, develop just as soon as needed.

This point of view is also corroborated by a study of the numeral systems of primitive languages. As is well known, many languages exist in which the numerals do not exceed two or three. It has been inferred from this that the people speaking these languages are not capable of forming the concept of higher numbers. I think this interpretation of the existing conditions is quite erroneous. People like the South American Indians (among whom these defective numeral systems are found), or like the Eskimo (whose old system of numbers probably did not exceed ten), are presumably not in need of higher numerical expressions, because there are not many objects that they have to count. On the other hand, just as soon as these same people find themselves in contact with civilization, and when they acquire standards of value that have to be counted, they adopt with perfect ease higher numerals from other languages and develop a more or less perfect system of counting. This does not mean that every individual who in the course of his life has never made use of higher numerals would acquire more complex systems readily, but the tribe as a whole seems always to be capable of adjusting itself to the needs of counting. It must be borne in mind that counting does not become necessary until objects are considered in such generalized form that their individualities are entirely lost sight of. For this reason it is possible that even a person who has a flock of domesticated animals may know them by name and by their characteristics without ever desiring to count them. Members of a war expedition may be known by name and may not be counted. In short, there is no proof that the lack of the use of numerals is in any way connected with the inability to form the concepts of higher numbers.

If we want to form a correct judgment of the influence that language exerts over thought, we ought to bear in mind that our European languages as found at the present time have been moulded to a great extent by the abstract thought of philosophers. Terms like *essence* and *existence*, many of which are now commonly used, are by origin artificial devices for expressing the results of abstract thought. In this they would resemble the artificial, unidiomatic abstract terms that may be formed in primitive languages.

Thus it would seem that the obstacles to generalized thought inherent in the form of a language are of minor importance only, and that presumably the language alone would not prevent a people from advancing to more generalized forms of thinking if the general state of their culture should require expression of such thought; that under these conditions the language would be moulded rather by the cultural state. It does not seem likely, therefore, that there is any direct relation between the culture of a tribe and the language they speak, except in so far as the form of the language will be moulded by the state of culture, but not in so far as a certain state of culture is conditioned by morphological traits of the language.

Unconscious Character of Linguistic Phenomena

Of greater positive importance is the question of the relation of the unconscious character of linguistic phenomena to the more conscious ethnological phenomena. It seems to my mind that this contrast is only apparent, and that the very fact of the unconsciousness of linguistic processes helps us to gain a clearer understanding of the ethnological phenomena, a point the importance of which can not be underrated. It has been mentioned before that in all languages certain classifications of concepts occur. To mention only a few: we find objects classified according to sex, or as animate and inanimate, or according to form. We find actions determined according to time and place, etc. The behavior of primitive man makes it perfectly clear that all these concepts, although they are in constant use, have never risen into consciousness, and that consequently their origin must be sought, not in rational, but in entirely unconscious, we may perhaps say instinctive, processes of the mind. They must be due to a grouping of sense-impressions and of concepts which is not in any sense of the term voluntary, but which develops from quite different psychological causes. It would seem that the essential difference between linguistic phenomena and other ethnological phenomena is, that the linguistic classifications never rise into consciousness, while in other ethnological phenomena, although the same unconscious origin prevails, these often rise into consciousness, and thus give rise to secondary reasoning and to re-interpretations. It would, for instance, seem very plausible that the fundamental religious notions—like the idea of the voluntary power of inanimate objects, or of the anthropomorphic

character of animals, or of the existence of powers that are superior to the mental and physical powers of man—are in their origin just as little conscious as are the fundamental ideas of language. While, however, the use of language is so automatic that the opportunity never arises for the fundamental notions to emerge into consciousness, this happens very frequently in all phenomena relating to religion. It would seem that there is no tribe in the world in which the religious activities have not come to be a subject of thought. While the religious activities may have been performed before the reason for performing them had become a subject of thought, they attained at an early time such importance that man asked himself the reason why he performed these actions. With this moment speculation in regard to religous activities arose, and the whole series of secondary explanations which form so vast a field of ethnological phenomena came into existence.

It is difficult to give a definite proof of the unconscious origin of ethnic phenomena, because so many of them are, or have come to be, subjects of thought. The best evidence that can be given for their unconscious origin must be taken from our own experience, and I think it is not difficult to show that certain groups of our activities, whatever the history of their earlier development may have been, develop at present in each individual and in the whole people entirely sub-consciously, and nevertheless are most potent in the formation of our opinions and actions. Simple examples of this kind are actions which we consider as proper and improper, and which may be found in great numbers in what we call good manners. Thus table manners, which on the whole are impressed vigorously upon the child while it is still young, have a very fixed form. Smacking of the lips and bringing the plate up to the mouth would not be tolerated, although no esthetic or other reason could be given for their rigid exclusion; and it is instructive to know that among a tribe like the Omaha it is considered as bad taste, when invited to eat, not to smack one's lips, because this is a sign of appreciation of the meal. I think it will readily be recognized that the simple fact that these habits are customary, while others are not, is sufficient reason for eliminating those acts that are not customary, and that the idea of propriety simply arises from the continuity and automatic repetition of these acts, which brings about the notion that manners contrary to custom are unusual, and

therefore not the proper manners. It may be observed in this connection that bad manners are always accompanied by rather intense feelings of displeasure, the psychological reason for which can be found only in the fact that the actions in question are contrary to those which have become habitual. It is fairly evident that in our table manners this strong feeling of propriety is associated with the familiar modes of eating. When a new kind of food is presented, the proper manner of eating which is not known, practically any habit that is not in absolute conflict with the common habits may readily establish itself.

The example of table manners gives also a fairly good instance of secondary explanation. It is not customary to bring the knife to the mouth, and very readily the feeling arises, that the knife is not used in this manner because in eating thus one would easily cut the lips. The lateness of the invention of the fork, and the fact that in many countries dull knives are used and that a similar danger exists of pricking the tongue or the lips with the sharp-pointed steel fork which is commonly used in Europe, show readily that this explanation is only a secondary rationalistic attempt to explain a custom that otherwise would remain unexplained.

If we are to draw a parallel to linguistic phenomena in this case, it would appear that the grouping of a number of unrelated actions in one group, for the reason that they cause a feeling of disgust, is brought about without any reasoning, and still sets off these actions clearly and definitely in a group by themselves.

On account of the importance of this question, it seems desirable to give another example, and one that seems to be more deeply seated than the one given before. A case of this kind is presented in the group of acts which we characterize as modest. It requires very little thought to see that, while the feelings of modesty are fundamental, the particular acts which are considered modest or immodest show immense variation, and are determined entirely by habits that develop unconsciously so far as their relation to modesty is concerned, and which may have their ultimate origin in causes of an entirely different character. A study of the history of costume proves at once that at different times and in different parts of the world it has been considered immodest to bare certain parts of the body. What parts of the body these are, is to a great

extent a matter of accident. Even at the present time, and within a rather narrow range, great variations in this respect may be found. Examples are the use of the veil in Turkey, the more or less rigid use of the glove in our own society, and the difference between street costume and evening dress. A lady in full evening dress in a street-car, during the daytime, would hardly appear in place.

We all are at once conscious of the intensity of these feelings of modesty, and of the extreme repugnance of the individual to any act that goes counter to the customary concepts of modesty. In a number of cases the origin of a costume can readily be traced, and in its development no considerations of modesty exert any influence. It is therefore evident that in this respect the grouping-together of certain customs again develops entirely unconsciously, but that, nevertheless, they stand out as a group set apart from others with great clearness as soon as our attention is directed toward the feelings of modesty.

To draw a parallel again between this ethnological phenomenon and linguistic phenomena, it would seem that the common feature of both is the grouping-together of a considerable number of activities under the form of a single idea, without the necessity of this idea itself entering into consciousness. The difference, again, would lie in the fact that the idea of modesty is easily isolated from other concepts, and that then secondary explanations are given of what is considered modest and what not. I believe that the unconscious formation of these categories is one of the fundamental traits of ethnic life, and that it even manifests itself in many of its more complex aspects; that many of our religious views and activities, of our ethical concepts, and even our scientific views, which are apparently based entirely on conscious reasoning, are affected by this tendency of distinct activities to associate themselves under the influence of strong emotions. It has been recognized before that this is one of the fundamental causes of error and of the diversity of opinion.

It seems necessary to dwell upon the analogy of ethnology and language in this respect, because, if we adopt this point of view, language seems to be one of the most instructive fields of inquiry in an investigation of the formation of the fundamental ethnic ideas. The great advantage that linguistics offer in this respect is the fact that, on the whole, the categories which are formed always remain

unconscious, and that for this reason the processes which lead to their formation can be followed without the misleading and disturbing factors of secondary explanations, which are so common in ethnology, so much so that they generally obscure the real history of the development of ideas entirely.

Cases are rare in which a people have begun to speculate about linguistic categories, and these speculations are almost always so clearly affected by the faulty reasoning that has led to secondary explanations, that they are readily recognized as such, and can not disturb the clear view of the history of linguistic processes. In America we find this tendency, for instance, among the Pawnee, who seem to have been led to several of their religious opinions by linguistic similarities. Incidentally such cases occur also in other languages, as, for instance, in Chinook mythology, where the Culture Hero discovers a man in a canoe who obtains fish by dancing, and tells him that he must not do so, but must catch fish with the net, a tale which is entirely based on the identity of the two words for *dancing*, and *catching with a net*. These are cases which show that Max Müller's theory of the influence of etymology upon religious concepts explains some of the religious phenomena, although, of course, it can be held to account for only a very small portion.

Judging the importance of linguistic studies from this point of view, it seems well worth while to subject the whole range of linguistic concepts to a searching analysis, and to seek in the peculiarities of the grouping of ideas in different languages an important characteristic in the history of the mental development of the various branches of mankind. From this point of view, the occurrence of the most fundamental grammatical concepts in all languages must be considered as proof of the unity of fundamental psychological processes. The characteristic groupings of concepts in American languages will be treated more fully in the discussion of the single linguistic stocks. The ethnological significance of these studies lies in the clear definition of the groupings of ideas which are brought out by the objective study of language.

There is still another theoretical aspect that deserves special attention. When we try to think at all clearly, we think, on the whole, in words; and it is well known that, even in the advancement of science, inaccuracy of vocabulary has often been a stumbling-

block which has made it difficult to reach accurate conclusions. The same words may be used with different significance, and by assuming the word to have the same significance always, erroneous conclusions may be reached. It may also be that the word expresses only part of an idea, so that owing to its use the full range of the subject-matter discussed may not be recognized. In the same manner the words may be too wide in their significance, including a number of distinct ideas the differences of which in the course of the development of the language were not recognized. Furthermore, we find that, among more primitive tribes, similarities of sound are misunderstood, and that ideas expressed by similar words are considered as similar or identical, and that descriptive terms are misunderstood as expressing an identity, or at least close relationship, between the object described and the group of ideas contained in the description.

All these traits of human thought, which are known to influence the history of science and which play a more or less important rôle in the general history of civilization, occur with equal frequency in the thoughts of primitive man. It will be sufficient to give a few examples of these cases.

One of the most common cases of a group of views due to failure to notice that the same word may signify divers objects, is that based on the belief of the identity of persons bearing the same name. Generally the interpretation is given that a child receives the name of an ancestor because he is believed to be a re-incarnation of the individuality of the ancestor. It seems, however, much more likely that this is not the real reason for the views connected with this custom, which seems due to the fact that no distinction is made between the name and the personality known under the name. The association established between name and individual is so close that the two seem almost inseparable; and when a name is mentioned, not only the name itself, but also the personality of its bearer, appears before the mind of the speaker.

Inferences based on peculiar forms of classification of ideas, and due to the fact that a whole group of distinct ideas are expressed by a single term, occur commonly in the terms of relationship of various languages; as, for instance, in our term *uncle*, which means the two distinct classes of father's brother and mother's

brother. Here, also, it is commonly assumed that the linguistic expression is a secondary reflex of the customs of the people; but the question is quite open in how far the one phenomenon is the primary one and the other the secondary one, and whether the customs of the people have not rather developed from the unconsciously developed terminology.

Cases in which the similarity of sound of words is reflected in the views of the people are not rare, and examples of these have been given before in referring to Max Müller's theory of the origin of religions.

Finally, a few examples may be given of cases in which the use of descriptive terms for certain concepts, or the metaphorical use of terms, has led to peculiar views or customs. It seems plausible to my mind, for instance, that the terms of relationship by which some of the eastern Indian tribes designate one another were originally nothing but a metaphorical use of these terms, and that the further elaboration of the social relations of the tribes may have been largely determined by transferring the ideas accompanying these terms into practice.

More convincing are examples taken from the use of metaphorical terms in poetry, which, in rituals, are taken literally, and are made the basis of certain rites. I am inclined to believe, for instance, that the frequently occurring image of *the devouring of wealth* has a close relation to the detailed form of the winter ritual among the Indians of the North Pacific coast, and that the poetical simile in which the chief is called the *support of the sky* has to a certain extent been taken literally in the elaboration of mythological ideas.

Thus it appears that from practical, as well as from theoretical, points of view, the study of language must be considered as one of the most important branches of ethnological study, because, on the one hand, a thorough insight into ethnology can not be gained without practical knowledge of language, and, on the other hand, the fundamental concepts illustrated by human languages are not distinct in kind from ethnological phenomena; and because, furthermore, the peculiar characteristics of languages are clearly reflected in the views and customs of the peoples of the world.

V. CHARACTERISTICS OF AMERICAN LANGUAGES

In older treatises of the languages of the world, languages have often been classified as isolating, agglutinating, polysynthetic, and inflecting languages. Chinese is generally given as an example of an isolating language. The agglutinating languages are represented by the Ural-Altaic languages of northern Asia; polysynthetic languages, by the languages of America; and inflecting languages, by the Indo-European and Semitic languages. The essential traits of these four groups are: That in the first, sentences are expressed solely by the juxtaposition of unchangeable elements; in the agglutinating languages, a single stem is modified by the attachment of numerous formative elements which modify the fundamental idea of the stem; in polysynthetic languages, a large number of distinct ideas are amalgamated by grammatical processes and form a single word, without any morphological distinction between the formal elements in the sentence and the contents of the sentence; and in the inflecting languages, on the other hand, a sharp distinction is made between formal elements and the material contents of the sentence, and stems are modified solely according to the logical forms in which they appear in the sentence.

An example of what is meant by polysynthesis is given, for instance, in the following Eskimo word: *takusariartorumagaluarnerpâ?* DO YOU THINK HE REALLY INTENDS TO GO TO LOOK AFTER IT? (*takusar*[*pâ*] he looks after it; *-iartor*[*poq*] he goes to; *-uma*[*voq*] he intends to; *-*[*g*]*aluar*[*poq*] he does so—but; *-ner*[*poq*] do you think he—; *-â*, interrogation, third person.) It will be recognized here, that there is no correspondence between the suffixed elements of the fundamental stem and the formal elements that appear in the Indo-European languages, but that a great variety of ideas are expressed by the long series of suffixes. Another example of similar kind is the Tsimshian word *t-yuk-ligi-lo-d'ɛp-dāLɛt* HE BEGAN TO PUT IT DOWN SOMEWHERE INSIDE (*t*, he; *yuk* to begin; *ligi* somewhere; *lo* in; *d'ɛp* down; *dāL* to put down; *-t* it).

American languages have also been designated as incorporating languages, by which is meant a tendency to incorporate the object of the sentence, either nominal or pronominal, in the verbal expression. Examples of this tendency are the Mexican *ni-petla-tšiwa* I MAKE MATS (*petla-tl* mat); or the Pawnee *tA-t-î'tka'wit* I DIG DIRT (*tA-* indic-

ative; *t-* I; *î'tkār*^{u} dirt; *-pīt* to dig [*rp* in contact, form '*w*]); or the Oneida *g-nagla'-sl-i-zak-s* I SEARCH FOR A VILLAGE (*g-* I; *-nagla'* to live; *-sl-* abstract noun; *-i-* verbal character; *-zak* to search; *-s* continuative).

A more thorough knowledge of the structure of many American languages shows that the general designation of all these languages as polysynthetic and incorporating is not tenable. We have in America a sufficiently large number of cases of languages in which the pronouns are not incorporated, but joined loosely to the verb, and we also have numerous languages in which the incorporation of many elements into a single word hardly occurs at all. Among the languages treated here, the Chinook may be given as an example of lack of polysynthesis. There are very few, if any, cases in which a single Chinook word expresses an extended complex of ideas, and we notice particularly that there are no large classes of ideas which are expressed in such form that they may be considered as subordinate. An examination of the structure of the Chinook grammar will show that each verbal stem appears modified only by pronominal and a few adverbial elements, and that nouns show hardly any tendency to incorporate new ideas such as are expressed by our adjectives. On the other hand, the Athapascan and the Haida and Tlingit may be taken as examples of languages which, though polysynthetic in the sense here described, do not readily incorporate the object, but treat both pronominal subject and pronominal object as independent elements. Among the languages of northern North America, the Iroquois alone has so strong a tendency to incorporate the nominal object into the verb, and at the same time to modify so much its independent form, that it can be considered as one of the characteristic languages that incorporate the object. To a lesser extent this trait belongs also to the Tsimshian, Kutenai, and Shoshone. It is strongly developed in the Caddoan languages. All the other incorporating languages treated here, like the Eskimo, Algonquian, and Kwakiutl, confine themselves to a more or less close incorporation of the pronominal object. In Shoshone, the incorporation of the pronominal object and of the nominal object is so weak that it is almost arbitrary whether we consider these forms as incorporated or not. If we extend our view over other parts of America, the same facts appear clearly, and it is not possible to consider these two traits as characteristics of all American languages.

On the other hand, there are certain traits that, although not common to all American languages, are at least frequent, and which are not less characteristic than the tendency to objective incorporation and to polysynthesis. The most important of these is the tendency to divide the verb sharply into an active and a neutral class, one of which is closely related to the possessive forms of the noun, while the other is treated as a true verb. We might perhaps say that American languages have a strong tendency to draw the dividing line between denominating terms and predicative terms, not in the same way that we are accustomed to do. In American languages many of our predicative terms are closely related to nominal terms, most frequently the neutral verbs expressing a state, like *to sit, to stand.* These, also, often include a considerable number of adjectives. On the other hand, terms expressing activities—like *to sing, to eat, to kill*—are treated as true predicative terms. The differentiation of these two classes is generally expressed by the occurrence of an entirely or partially separated set of pronouns for the predicative terms.

Beyond these extremely vague points, there are hardly any characteristics that are common to many American languages. A number of traits, however, may be enumerated which occur with considerable frequency in many parts of America.

The phonetic systems of American languages differ very considerably, but we find with remarkable frequency a peculiar differentiation of voiced and unvoiced stops,—corresponding to our *b, p; d, t; g, k,*—which differ in principle from the classification of the corresponding sounds in most of the European languages. An examination of American vocabularies and texts shows very clearly that all observers have had more or less difficulty in differentiating these sounds. Although there is not the slightest doubt that they differ in character, it would seem that there is almost everywhere a tendency to pronounce the voiced and unvoiced sounds with very nearly equal stress of articulation, not as in European languages, where the unvoiced sound is generally pronounced with greater stress. This equality of stress of the two sounds brings it about that their differences appear rather slight. On the other hand, there are frequently sounds, particularly in the languages of the Pacific coast, in which a stress of articulation is used which is considerably greater than any stresses occurring in the languages with which we are familiar. These sounds are generally unvoiced; but a high air-pressure in the oral cavity is secured by

closing the glottis and nares, or by closing the posterior part of the mouth with the base of the tongue. The release at the point of articulation lets out the small amount of strongly compressed air, and the subsequent opening of glottis and nares or base of tongue produces a break in the continuity of sound.

We find also with particular frequency the occurrence of a number of lingual stops corresponding more or less strictly to our *k* sounds which, however, are more finely differentiated than our *k* sounds. Thus the velar *k*, which is so characteristic of Semitic languages, occurs with great frequency in America. On the other hand, the labio-dental *f* seems to be rather rare, and where a similar sound occurs it is often the bilabial sound.

The same may be said of the *r*, which on the whole is a rare sound in American languages, and the trill of which is almost always so weak that it merges into the *d*, *n*, *l*, or *y*, as the case may be.

On the whole, the system of consonants of American languages is well developed, particularly owing to the occurrence of the three stresses to which I referred before, instead of the two with which we are more familiar. In some groups of languages we have also a quite distinct set of stops accompanied by full breathing, which correspond to the English surds. Furthermore, a peculiar break, produced by closing the vocal chords, occurs quite commonly, not only in connection with sonants, but also following or preceding vowels or affricative consonants. This intonation is sometimes quite audible, and sometimes merely a break or hiatus in the continuity of pronunciation. Sometimes it seems related to the pronunciation of a voiced consonant in which the voicing is preceded by a closure of the vocal chords. In other cases it seems related to the production of the great stress of articulation to which I referred before. For instance, in a strong *t* the tongue may be pressed so firmly against the palate that all the articulating organs, including the vocal chords, take part in the tension, and that the sudden expulsion of the air is accompanied also by a sudden relaxation of the vocal chords, so that for this reason the strong, exploded sound appears to be accompanied by an intonation of the vocal chords.

As stated before, these traits are not by any means common to all American languages, but they are sufficiently frequent to deserve mention in a generalized discussion of the subject.

On the other hand, there are languages which are exceedingly deficient in their phonetic system. Among these may be mentioned, for

instance, the Iroquois, which possesses not a single true labial consonant; or the Haida, in which the labials are confined to a few sounds, which are rather rare.

The vocalic systems of the northern languages seem peculiarly uncertain. The cases are very numerous in which obscure vowels occur, which are evidently related to fuller vowels, but whose affiliations often can not be determined. It would seem that in the southern languages these weak vowels are not so prominent. We also find very frequently a lack of clear distinction between *o* and *u* on the one hand, and *e* and *i* on the other. Although the variability of vowels in some of the languages seems beyond doubt, there are others in which the vocalic system is very definite and in which distinctions are expressed, not only by the timbre of the vowel, but also by its rising or falling tone. Among these may be mentioned the Pawnee and the Takelma. The Pawnee seems to have at least two tones, a sinking tone and a rising tone, while in Takelma there seem to be three tones. Nasalized vowels are very common in some languages, and entirely absent in others. This nasalization occurs both with open lips and with closed lips. An example of the latter is the Iroquois u^m.

It is not possible to give any general characterization of American languages with regard to the grouping of sounds. While in some languages consonantic clusters of incredible complexity are formed, others avoid such clusters altogether. There is, however, a habit of pronunciation which deserves attention, and which is found very widely distributed. This is the slurring of the ends of words, which is sometimes so pronounced, that, in an attempt to write the words, the terminations, grammatical or other, may become entirely inaudible. The simplest form in which this tendency expresses itself is in the suppression of terminal consonants, which are only articulated, but not pronounced. In the Nass river dialect of the Tsimshian, for instance, the terminal *n* of the word *gan* TREE is indicated by the position of the tongue, but is entirely inaudible, unless the word is followed by other words belonging to the same sentence. In that language the same is true of the sounds *l* and *m*. Vowels are suppressed in a similar manner by being only indicated by the position of the mouth, without being articulated. This happens frequently to the *u* following a *k*, or with an *i* in the same position.

Thus, the Kwakiutl pronounce *wā'dɛk^u*. If, however, another vowel follows, the *u* which is not articulated appears as a *w*, as in the form *wā'dɛkwa*.

The slurring, however, extends over whole syllables, which in these cases may appear highly modified. Thus, in the Oneida dialect of the Iroquois, a peculiar *l* sound is heard, which presumably occurs only in such slurred syllables. It is very remarkable that the Indians of all tribes are perfectly conscious of the phonetic elements which have thus been suppressed, and can, when pressed to do so, pronounce the words with their full endings.

Another trait that is characteristic of many American languages, and that deserves mention, is the tendency of various parts of the population to modify the pronunciation of sounds. Thus we find that among some Eskimo tribes the men pronounce the terminal *p*, *t*, *k*, and *q* distinctly, while the women always transform these sounds into *m*, *n*, *ñ*, and *ñ̇*. In some dialects the men have also adopted this manner of pronouncing, so that the pronunciation has become uniform again. Such mannerisms, that are peculiar to certain social groups, are of course not entirely foreign to us, but they are seldom developed in so striking a manner as in a few of the Indian languages.

In many American languages we find highly developed laws of euphony,—laws by which, automatically, one sound in a sentence requires certain other sounds either to precede or to follow it. In the majority of cases these laws of euphony seem to act forward in a manner that may be compared to the laws of vowel harmony in the Ural-Altaic languages. Particularly remarkable among these laws is the influence of the *o* upon following vowels, which occurs in a few languages of the Pacific coast. In these, the vowels following an *o* in the same word must, under certain conditions, be transformed into *o* vowels, or at least be modified by the addition of a *w*. Quite different in character are the numerous influences of contact of sounds, which are very pronounced in the Siouan languages, and occur again in a quite different form in the Pawnee. It may be well to give an example of these also. Thus, in Dakota, words ending with an *a* and followed by a word beginning with a *k* transform the former into *e*, the latter into *č*. In Pawnee, on the other hand, the combination *tr* is always transformed into an *h; b* following an *i* is generally

changed into a *w; rp* becomes *hw*, etc. While in some languages these phonetic changes do not occupy a prominent place, they are exceedingly important in others. They correspond in a way to the laws of euphony of Sanskrit.

Just as much variety as is shown in phonetic systems is found in the use of grammatical devices. In discussing the definition of the word, it has been pointed out that in some American languages the word-unit seems to be perfectly clear and consistent, while in others the structure of the sentence would seem to justify us in considering it as composed of a number of independent elements combined by juxtaposition. Thus, languages which have a polysynthetic character have the tendency to form firmly knit word-units, which may be predicative sentences, but may also be used for denominative purposes. For example, the Chinook may say, *He runs into the water*, and may designate by this term *the mink;* or the Hupa may say *They have been laid together*, meaning by this term *a fire*. On the other hand, there are innumerable languages in America in which expressions of this kind are entirely impossible.

In forming words and sentences, affixes are used extensively, and we find prefixes, as well as suffixes and infixes. It is not absolutely certain that cases occur in America where true infixing into a stem takes place, and where it might not be better explained as an insertion of the apparently infixed element into a compound stem, or as due to secondary phonetic phenomena, like those of metathesis; but in the Siouan languages at least, infixion in bisyllabic stems that are apparently simple in their origin occurs. Otherwise, suffixing is, on the whole, more extensively used than prefixing; and in some languages only one of these two methods is used, in others both. There are probably no languages in which prefixing alone occurs.

Change of stem is also a device that is used with great frequency. We find particularly that methods of reduplication are used extensively. Modifications of single sounds of the stem occur also, and sometimes in peculiar form. Thus we have cases, as in Tsimshian, where the lengthening of a vowel indicates plurality; or, as in Algonquian, where modality is expressed by vocalic modification; and, as in Chinook, where diminutive and augmentative are expressed by increasing the stress of consonants. Sometimes an exuberance of reduplicated forms is found, the reduplicated stem being reduplicated a second and even a third time. On the other

hand, we find numerous languages in which the stem is entirely unchangeable, excepting so far as it may be subject to phonetic contact phenomena.

The following grammatical sketches have been contributed by investigators, each of whom has made a special study of the linguistic stock of which he treats. The attempt has been made to adopt, so far as feasible, a uniform method of treatment, without, however, sacrificing the individual conception of each investigator.

In accordance with the general views expressed in the introductory chapters, the method of treatment has been throughout an analytical one. No attempt has been made to compare the forms of the Indian grammars with the grammars of English, Latin, or even among themselves; but in each case the psychological groupings which are given depend entirely upon the inner form of each language. In other words, the grammar has been treated as though an intelligent Indian was going to develop the forms of his own thoughts by an analysis of his own form of speech.

It will be understood that the results of this analysis can not be claimed to represent the fundamental categories from which the present form of each language has developed. There is not the slightest doubt that, in all Indian languages, processes have occurred analogous to those processes which are historically known and to which the modern forms of Indo-European languages owe their present forms. Grammatical categories have been lost, and new ones have developed. Even a hasty comparison of the dialects of various American linguistic families gives ample proof that similar processes have taken place here. To give an example, we find that, in the Ponca dialect of the Siouan languages, nouns are classified according to form, and that there is a clear formal distinction between the subject and the object of the sentence. These important features have disappeared entirely in the Dakota dialect of the same group of languages. To give another example, we find a pronominal sex gender in all the dialects of the Salishan stock that are spoken west of the Coast range in the states of Washington and in British Columbia, while in the dialects of the interior there is no trace of gender. On the other hand, we find in one of the Salish dialects of the interior the occurrence of an exclusive and inclusive form of the pronoun, which is absent in all the other dialects of the same stock. We have no information on the

history of American languages, and the study of dialects has not advanced far enough to permit us to draw far-reaching inferences in regard to this subject. It is therefore impossible, in the few cases here mentioned, to state whether the occurrence and non-occurrence of these categories are due to a loss of old forms in the one dialect or to a later differentiation in the other.

Although, therefore, an analytical grammar can not lay any claim to present a history of the development of grammatical categories, it is valuable as a presentation of the present state of grammatical development in each linguistic group. The results of our investigation must be supplemented at a later time by a thorough analysis and comparison of all the dialects of each linguistic stock.

Owing to the fundamental differences between different linguistic families, it has seemed advisable to develop the terminology of each independently of the others, and to seek for uniformity only in cases where it can be obtained without artificially stretching the definition of terms. It is planned to give a comparative discussion of the languages at the close of these volumes, when reference can be made to the published sketches.

So far as our present knowledge goes, the following linguistic families may be distinguished in North America north of Mexico:

1. Eskimo (arctic coast).
2. Athapascan (northwestern interior, Oregon, California, Southwest).
3. Tlingit (coast of southern Alaska).
4. Haida (Queen Charlotte islands, British Columbia).
5. Salishan (southern British Columbia and northern Washington).
6. Chemakum (west coast of Washington).
7. Wakashan (Vancouver island).
8. Algonquian (region south of Hudson Bay and eastern Woodlands).
9. Beothuk (Newfoundland).
10. Tsimshian (northern coast of British Columbia).
11. Siouan (northern plains west of Mississippi and North Carolina).
12. Iroquoian (lower Great Lakes and North Carolina).
13. Caddoan (southern part of plains west of Mississippi).
14. Muskhogean (southeastern United States).
15. Kiowa (middle Western plains).
16. Shoshonean (western plateaus of United States).

17. Kutenai (southeastern interior of British Columbia).
18. Pima (Arizona and Sonora).
19. Yuma (Arizona and lower California).
20. Chinook (lower Columbia river).
21. Yakona (Yaquina bay).
22. Kus (coast of central Oregon).
23. Takelma (Rogue river, Oregon).
24. Kalapuya (Willamette valley, Oregon).
25. Waiilaptuan (Cascade range east of Willamette, Ore.).
26. Klamath (southeastern interior of Oregon).
27. Sahaptin (interior of Oregon).
28. Quoratean (Klamath river).
29. Weitspekan (lower Klamath river).
30. Shasta (northeast interior of California).
31. Wishok (north coast of California).
32. Yana (eastern tributaries of upper Sacramento river, California).
33. Chimarico (head waters of Sacramento river, California).
34. Wintun (valley of Sacramento river).
35. Maidu (east of Sacramento river).
36. Yuki (north of Bay of San Francisco).
37. Pomo (coast north of Bay of San Francisco).
38. Washo (Lake Washoe, Nevada, and California).
39. Moquelumnan (east of lower Tulare river, California).
40. Yokuts (southern Tulare river, California).
41. Costanoan (south of Bay of San Francisco, California).
42. Esselenian (coast of southern California).
43. Salinan (coast of southern California).
44. Chumashan (coast of southern California).
45. Tanoan
46. Zuñi
47. Keres

(Pueblos of New Mexico and Arizona).

48. Pakawan (from Cibolo creek, Texas, into the state of Coahuila, Mexico).
49. Karankawa (coast of Gulf of Mexico west of Atakapa).
50. Tonkawa (inland from preceding).
51. Atakapa (coast of Gulf of Mexico west of Chitimacha).
52. Chitimacha (coast of Gulf of Mexico west of Mississippi).
53. Tunica (coast of Gulf of Mexico west of Mississippi).
54. Yuchi (east Georgia).
55. Timuqua (Florida).

Of these, the present volume contains sketches of a number of languages of the northern group, the Athapascan, Tlingit, Haida, Tsimshian, Kwakiutl, Chinook, Maidu, Algonquian, Siouan, Eskimo.