

# INTRODUCTION

## *Chapter I*

### A GLANCE AT THE HISTORY OF LINGUISTICS

The science that has been developed around the facts of language passed through three stages before finding its true and unique object.



First something called “grammar” was studied. This study, initiated by the Greeks and continued mainly by the French, was based on logic. It lacked a scientific approach and was detached from language itself. Its only aim was to give rules for distinguishing between correct and incorrect forms; it was a normative discipline, far removed from actual observation, and its scope was limited.

Next appeared philology. A “philological” school had existed much earlier in Alexandria, but this name is more often applied to the scientific movement which was started by Friedrich August Wolf in 1777 and which continues to this day. Language is not its sole object. The early philologists sought especially to correct, interpret and comment upon written texts. Their studies also led to an interest in literary history, customs, institutions, etc.<sup>1</sup> They applied the methods of criticism for their own purposes. When they dealt with linguistic questions, it was for the express purpose of comparing texts of different periods, determining the language peculiar to each author, or deciphering and explaining inscriptions made in an archaic or obscure language. Doubtless these investigations broke the ground for historical linguistics. Ritschl’s studies of Plautus are actually linguistic. But philological criticism is still deficient on one point: it follows the written language too slavishly

<sup>1</sup> At the risk of offending some readers, certain stylistic characteristics of the original French are retained. [Tr.] (The bracketed abbreviations *S.*, *Ed.* and *Tr.* indicate whether footnotes are to be attributed to Saussure, to the editors of the *Cours de linguistique générale*, or to the translator.)

and neglects the living language. Moreover, it is concerned with little except Greek and Latin antiquity.

The third stage began when scholars discovered that languages can be compared with one another. This discovery was the origin of "comparative philology." In 1816, in a work entitled *Über das Conjugationssystem der Sanskritsprache*, Franz Bopp compared Sanskrit with German, Greek, Latin, etc. Bopp was not the first to record their similarities and state that all these languages belong to a single family. That had been done before him, notably by the English orientalist W. Jones (died in 1794); but Jones' few isolated statements do not prove that the significance and importance of comparison had been generally understood before 1816. While Bopp cannot be credited with the discovery that Sanskrit is related to certain languages of Europe and Asia, he did realize that the comparison of related languages could become the subject matter of an independent science. To illuminate one language by means of another, to explain the forms of one through the forms of the other, that is what no one had done before him.

Whether Bopp could have created his science—so quickly at least—without the prior discovery of Sanskrit is doubtful. With Sanskrit as a third witness beside Latin and Greek, Bopp had a larger and firmer basis for his studies. Fortunately, Sanskrit was exceptionally well-fitted to the role of illuminating the comparison.

For example, a comparison of the paradigms of Latin *genus* (*genus, generis, genere, genera, generum, etc.*) and Greek (*génos, géneos, génei, génea, genéōn, etc.*) reveals nothing. But the picture changes as soon as we add the corresponding Sanskrit series (*ǵanas, ǵanasas, ǵanasi, ǵanasu, ǵanasām, etc.*). A glance reveals the similarity between the Greek forms and the Latin forms. If we accept tentatively the hypothesis that *ǵanas* represents the primitive state—and this step facilitates explanation—then we conclude that *s* must have fallen in Greek forms wherever it occurred between two vowels. Next we conclude that *s* became *r* in Latin under the same conditions. Grammatically, then, the Sanskrit paradigm exemplifies the concept of radical, a unit (*ǵanas*) that is quite definite and stable. Latin and Greek had the same forms as Sanskrit only in their earlier stages. Here Sanskrit is instructive precisely because it has preserved all the Indo-European *s*'s. Of course

Sanskrit failed in other respects to preserve the features of the prototype; for instance, it had completely revolutionized the vocalic system. But in general the original elements that Sanskrit has preserved are remarkably helpful in research—and fate decreed that it was to clarify many points in the study of other languages.

Other distinguished linguists soon added to the contribution of Bopp: Jacob Grimm, the founder of Germanic studies (his *Deutsche Grammatik* was published from 1822 to 1836); Pott, whose etymological studies made a considerable amount of material available to linguists; Kuhn, whose works dealt with both linguistics and comparative mythology; the Indic scholars Benfey and Aufrecht, etc.

Finally, among the last representatives of the school, Max Müller, G. Curtius, and August Schleicher deserve special attention. In different ways, all three did much to advance comparative studies. Max Müller popularized them in his brilliant discussions (*Lessons in the Science of Language*, 1861); but his failing was a certain lack of conscientiousness. Curtius, a distinguished philologist known especially for his *Grundzüge der griechischen Etymologie* (1879), was one of the first to reconcile comparative philology with classical philology. The latter had watched the progress of the new science suspiciously, and each school had mistrusted the other. Schleicher was the first to try to codify the results of piecemeal investigations. His *Compendium der vergleichenden Grammatik der indogermanischen Sprachen* (1861–62) is more or less a systemization of the science founded by Bopp. His book, with its long record of service, recalls better than any other the broad outlines of the comparative school, which is the first chapter in the history of Indo-European linguistics.

But the comparative school, which had the indisputable merit of opening up a new and fruitful field, did not succeed in setting up the true science of linguistics? It failed to seek out the nature of its object of study. Obviously, without this elementary step, no science can develop a method.

The first mistake of the comparative philologists was also the source of all their other mistakes. In their investigations (which embraced only the Indo-European languages), they never asked themselves the meaning of their comparisons or the significance of the

relations that they discovered. Their method was exclusively comparative, not historical. Of course comparison is required for any historical reconstruction, but by itself it cannot be conclusive. And the conclusion was all the more elusive whenever the comparative philologists looked upon the development of two languages as a naturalist might look upon the growth of two plants. For example Schleicher, who always invites us to start from Proto-Indo-European and thus seems in a sense to be a confirmed historian, has no hesitancy in saying that Greek *e* and *o* are two grades (*Stufen*) of the vocalic system. This is because Sanskrit has a system of vocalic alternations that suggests the notion of grades. Schleicher supposed that each language has to pass through those grades separately and in exactly the same way, just as plants of the same species pass through the same developmental stages independently of one another, and saw a reinforced grade of *e* in Greek *o* and a reinforced grade of *ā* in Sanskrit *ā*. The fact is that a Proto-Indo-European alternation was reflected differently in Greek and in Sanskrit without there being any necessary equivalence between the grammatical effects produced in either language (see pp. 158 ff.).

The exclusively comparative method brought in a set of false notions. Having no basis in reality, these notions simply could not reflect the facts of speech. Language was considered a specific sphere, a fourth natural kingdom; this led to methods of reasoning which would have caused astonishment in other sciences. Today one cannot read a dozen lines written at that time without being struck by absurdities of reasoning and by the terminology used to justify these absurdities.

But from the viewpoint of methodology, the mistakes of the comparative philologists are not without value; the mistakes of an infant science give a magnified picture of those made by anyone in the first stages of scientific research, and I shall have occasion to point out several of them in the course of this exposition.

Not until around 1870 did scholars begin to seek out the principles that govern the life of languages. Then they began to see that similarities between languages are only one side of the linguistic phenomenon, that comparison is only a means or method of reconstructing the facts.

Linguistics proper, which puts comparative studies in their

proper place, owes its origin to the study of the Romance and Germanic languages. Romance studies, begun by Diez—his *Grammatik der romanischen Sprachen* dates from 1836–38—were instrumental in bringing linguistics nearer to its true object. For Romance scholars enjoyed privileged conditions that were unknown to Indo-European scholars. They had direct access to Latin, the prototype of the Romance languages, and an abundance of texts allowed them to trace in detail the evolution of the different dialects; these two circumstances narrowed the field of conjecture and provided a remarkably solid frame for all their research. Germanic scholars were in a similar situation. Though they could not study the prototype directly, numerous texts enabled them to trace the history of the languages derived from Proto-Germanic through the course of many centuries. The Germanic scholars, coming to closer grips with reality than had the first Indo-European scholars, reached different conclusions.

A first impetus was given by the American scholar Whitney, the author of *Life and Growth of Language* (1875). Shortly afterwards a new school was formed by the neogrammarians (*Junggrammatiker*), whose leaders were all Germans: K. Brugmann and H. Osthoff; the Germanic scholars W. Braune, E. Sievers, H. Paul; the Slavic scholar Leskien, etc. Their contribution was in placing the results of comparative studies in their historical perspective and thus linking the facts in their natural order. Thanks to them, language is no longer looked upon as an organism that develops independently but as a product of the collective mind of linguistic groups. At the same time scholars realized how erroneous and insufficient were the notions of philology and comparative philology.<sup>2</sup> Still, in spite of the services that they rendered, the neogrammarians did not illuminate the whole question, and the fundamental problems of general linguistics still await solution.

<sup>2</sup> The new school, using a more realistic approach than had its predecessor, fought the terminology of the comparative school, and especially the illogical metaphors that it used. One no longer dared to say, "Language does this or that," or "life of language," etc. since language is not an entity and exists only within speakers. One must not go too far, however, and a compromise is in order. Certain metaphors are indispensable. To require that only words that correspond to the facts of speech be used is to pretend that these facts no longer perplex us. This is by no means true, and in some instances I shall not hesitate to use one of the expressions condemned at that time. [S.]

*Chapter II*

## SUBJECT MATTER AND SCOPE OF LINGUISTICS; ITS RELATIONS WITH OTHER SCIENCES

The subject matter of linguistics comprises all manifestations of human speech, whether that of savages or civilized nations, or of archaic, classical or decadent periods. In each period the linguist must consider not only correct speech and flowery language, but all other forms of expression as well. And that is not all: since he is often unable to observe speech directly, he must consider written texts, for only through them can he reach idioms that are remote in time or space.

The scope of linguistics should be:

a) to describe and trace the history of all observable languages, which amounts to tracing the history of families of languages and reconstructing as far as possible the mother language of each family;

b) to determine the forces that are permanently and universally at work in all languages, and to deduce the general laws to which all specific historical phenomena can be reduced; and

c) to delimit and define itself.

Linguistics is very closely related to other sciences that sometimes borrow from its data, sometimes supply it with data. The lines of demarcation do not always show up clearly. For instance, linguistics must be carefully distinguished from ethnography and prehistory, where language is used merely to document. It must also be set apart from anthropology, which studies man solely from the viewpoint of his species, for language is a social fact. But must linguistics then be combined with sociology? What are the relationships between linguistics and social psychology? Everything in language is basically psychological, including its material and mechanical manifestations, such as sound changes; and since linguistics provides social psychology with such valuable data, is it

not part and parcel of this discipline? Here I shall raise many similar questions; later I shall treat them at greater length.

The ties between linguistics and the physiology of sounds are less difficult to untangle. The relation is unilateral in the sense that the study of languages exacts clarifications from the science of the physiology of sounds but furnishes none in return. In any event, the two disciplines cannot be confused. The thing that constitutes language is, as I shall show later, unrelated to the phonic character of the linguistic sign.

As for philology, we have already drawn the line: it is distinct from linguistics despite points of contact between the two sciences and mutual services that they render.

Finally, of what use is linguistics? Very few people have clear ideas on this point, and this is not the place to specify them. But it is evident, for instance, that linguistic questions interest all who work with texts—historians, philologists, etc. Still more obvious is the importance of linguistics to general culture: in the lives of individuals and societies, speech is more important than anything else. That linguistics should continue to be the prerogative of a few specialists would be unthinkable—everyone is concerned with it in one way or another. But—and this is a paradoxical consequence of the interest that is fixed on linguistics—there is no other field in which so many absurd notions, prejudices, mirages, and fictions have sprung up. From the psychological viewpoint these errors are of interest, but the task of the linguist is, above all else, to condemn them and to dispel them as best he can.



### *Chapter III*

## THE OBJECT OF LINGUISTICS

### 1. *Definition of Language*

What is both the integral and concrete object of linguistics? The question is especially difficult; later we shall see why; here I wish merely to point up the difficulty.

Other sciences work with objects that are given in advance and that can then be considered from different viewpoints; but not linguistics. Someone pronounces the French word *nu* 'bare': a superficial observer would be tempted to call the word a concrete linguistic object; but a more careful examination would reveal successively three or four quite different things, depending on whether the word is considered as a sound, as the expression of an idea, as the equivalent of Latin *nudum*, etc. Far from it being the object that antedates the viewpoint, it would seem that it is the viewpoint that creates the object; besides, nothing tells us in advance that one way of considering the fact in question takes precedence over the others or is in any way superior to them.

Moreover, regardless of the viewpoint that we adopt, the linguistic phenomenon always has two related sides, each deriving its values from the other. For example:

1) Articulated syllables are acoustical impressions perceived by the ear, but the sounds would not exist without the vocal organs; an *n*, for example, exists only by virtue of the relation between the two sides. We simply cannot reduce language to sound or detach sound from oral articulation; reciprocally, we cannot define the movements of the vocal organs without taking into account the acoustical impression (see pp. 38 ff.).

2) But suppose that sound were a simple thing: would it constitute speech? No, it is only the instrument of thought; by itself, it has no existence. At this point a new and redoubtable relationship arises: a sound, a complex acoustical-vocal unit, combines in turn with an idea to form a complex physiological-psychological unit. But that is still not the complete picture.

3) Speech has both an individual and a social side, and we cannot conceive of one without the other. Besides:

4) Speech always implies both an established system and an evolution; at every moment it is an existing institution and a product of the past. To distinguish between the system and its history, between what it is and what it was, seems very simple at first glance; actually the two things are so closely related that we can scarcely keep them apart. Would we simplify the question by studying the linguistic phenomenon in its earliest stages—if we

began, for example, by studying the speech of children? No, for in dealing with speech, it is completely misleading to assume that the problem of early characteristics differs from the problem of permanent characteristics. We are left inside the vicious circle.

From whatever direction we approach the question, nowhere do we find the integral object of linguistics. Everywhere we are confronted with a dilemma: if we fix our attention on only one side of each problem, we run the risk of failing to perceive the dualities pointed out above; on the other hand, if we study speech from several viewpoints simultaneously, the object of linguistics appears to us as a confused mass of heterogeneous and unrelated things. Either procedure opens the door to several sciences—psychology, anthropology, normative grammar, philology, etc.—which are distinct from linguistics, but which might claim speech, in view of the faulty method of linguistics, as one of their objects.

As I see it there is only one solution to all the foregoing difficulties: *from the very outset we must put both feet on the ground of language and use language as the norm of all other manifestations of speech.* Actually, among so many dualities, language alone seems to lend itself to independent definition and provide a fulcrum that satisfies the mind.

But what is language [*langue*]? It is not to be confused with human speech [*langage*], of which it is only a definite part, though certainly an essential one. It is both a social product of the faculty of speech and a collection of necessary conventions that have been adopted by a social body to permit individuals to exercise that faculty. Taken as a whole, speech is many-sided and heterogeneous; straddling several areas simultaneously—physical, physiological, and psychological—it belongs both to the individual and to society; we cannot put it into any category of human facts, for we cannot discover its unity.

Language, on the contrary, is a self-contained whole and a principle of classification. As soon as we give language first place among the facts of speech, we introduce a natural order into a mass that lends itself to no other classification.

One might object to that principle of classification on the ground that since the use of speech is based on a natural faculty whereas

language is something acquired and conventional, language should not take first place but should be subordinated to the natural instinct.

That objection is easily refuted.

First, no one has proved that speech, as it manifests itself when we speak, is entirely natural, i.e. that our vocal apparatus was designed for speaking just as our legs were designed for walking. Linguists are far from agreement on this point. For instance Whitney, to whom language is one of several social institutions, thinks that we use the vocal apparatus as the instrument of language purely through luck, for the sake of convenience: men might just as well have chosen gestures and used visual symbols instead of acoustical symbols. Doubtless his thesis is too dogmatic; language is not similar in all respects to other social institutions (see p. 73 f. and p. 75 f.); moreover, Whitney goes too far in saying that our choice happened to fall on the vocal organs; the choice was more or less imposed by nature. But on the essential point the American linguist is right: language is a convention, and the nature of the sign that is agreed upon does not matter. The question of the vocal apparatus obviously takes a secondary place in the problem of speech.

One definition of *articulated speech* might confirm that conclusion. In Latin, *articulus* means a member, part, or subdivision of a sequence; applied to speech, articulation designates either the subdivision of a spoken chain into syllables or the subdivision of the chain of meanings into significant units; *gegliederte Sprache* is used in the second sense in German. Using the second definition, we can say that what is natural to mankind is not oral speech but the faculty of constructing a language, i.e. a system of distinct signs corresponding to distinct ideas.

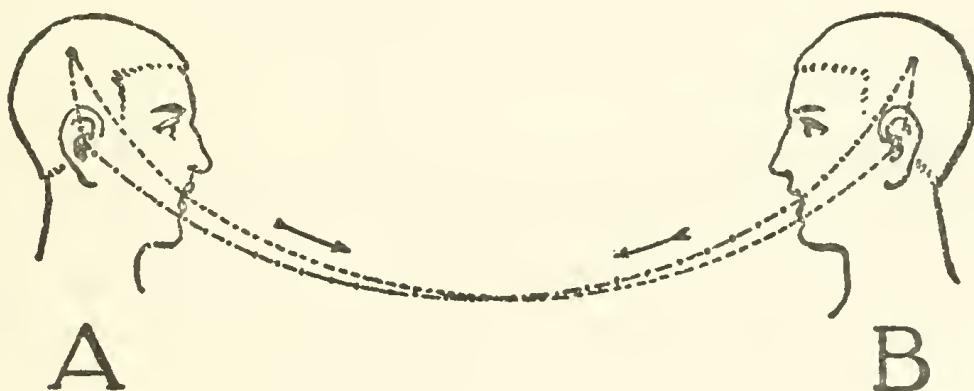
Broca discovered that the faculty of speech is localized in the third left frontal convolution; his discovery has been used to substantiate the attribution of a natural quality to speech. But we know that the same part of the brain is the center of *everything* that has to do with speech, including writing. The preceding statements, together with observations that have been made in different cases of aphasia resulting from lesion of the centers of localization, seem to indicate: (1) that the various disorders of oral speech are bound

up in a hundred ways with those of written speech; and (2) that what is lost in all cases of aphasia or agraphia is less the faculty of producing a given sound or writing a given sign than the ability to evoke by means of an instrument, regardless of what it is, the signs of a regular system of speech. The obvious implication is that beyond the functioning of the various organs there exists a more general faculty which governs signs and which would be the linguistic faculty proper. And this brings us to the same conclusion as above.

To give language first place in the study of speech, we can advance a final argument: the faculty of articulating words—whether it is natural or not—is exercised only with the help of the instrument created by a collectivity and provided for its use; therefore, to say that language gives unity to speech is not fanciful.

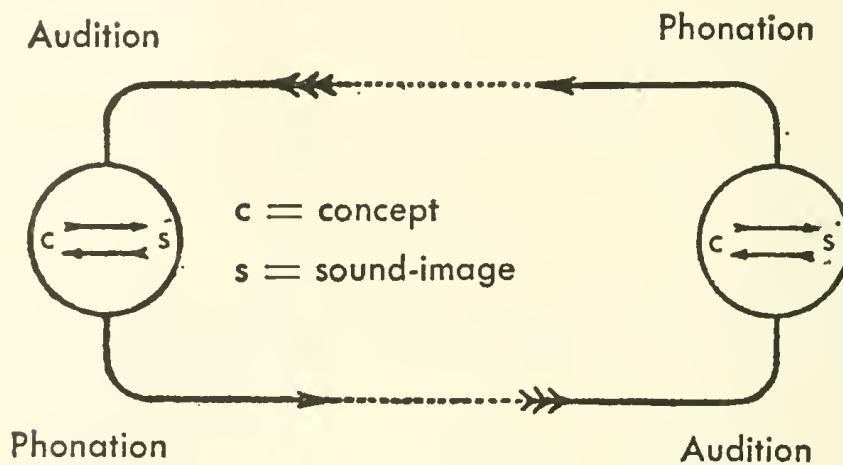
## 2. Place of Language in the Facts of Speech

In order to separate from the whole of speech the part that belongs to language, we must examine the individual act from which the speaking-circuit can be reconstructed. The act requires the presence of at least two persons; that is the minimum number necessary to complete the circuit. Suppose that two people, A and B, are conversing with each other:



Suppose that the opening of the circuit is in A's brain, where mental facts (concepts) are associated with representations of the linguistic sounds (sound-images) that are used for their expression. A given concept unlocks a corresponding sound-image in the brain; this purely *psychological* phenomenon is followed in turn by a *physiological* process: the brain transmits an impulse corresponding

to the image to the organs used in producing sounds. Then the sound waves travel from the mouth of A to the ear of B: a purely physical process. Next, the circuit continues in B, but the order is reversed: from the ear to the brain, the physiological transmission of the sound-image; in the brain, the psychological association of the image with the corresponding concept. If B then speaks, the new act will follow—from his brain to A's—exactly the same course as the first act and pass through the same successive phases, which I shall diagram as follows:



The preceding analysis does not purport to be complete. We might also single out the pure acoustical sensation, the identification of that sensation with the latent sound-image, the muscular image of phonation, etc. I have included only the elements thought to be essential, but the drawing brings out at a glance the distinction between the physical (sound waves), physiological (phonation and audition), and psychological parts (word-images and concepts). Indeed, we should not fail to note that the word-image stands apart from the sound itself and that it is just as psychological as the concept which is associated with it.

The circuit that I have outlined can be further divided into:

- a) an outer part that includes the vibrations of the sounds which travel from the mouth to the ear, and an inner part that includes everything else;
- b) a psychological and a nonpsychological part, the second including the physiological productions of the vocal organs as well as the physical facts that are outside the individual;

- c) an active and a passive part: everything that goes from the associative center of the speaker to the ear of the listener is active, and everything that goes from the ear of the listener to his associative center is passive;
- d) finally, everything that is active in the psychological part of the circuit is executive ( $c \rightarrow s$ ), and everything that is passive is receptive ( $s \rightarrow c$ ).

We should also add the associative and co-ordinating faculty that we find as soon as we leave isolated signs; this faculty plays the dominant role in the organization of language as a system (see pp. 122 ff.).

But to understand clearly the role of the associative and co-ordinating faculty, we must leave the individual act, which is only the embryo of speech, and approach the social fact.

Among all the individuals that are linked together by speech, some sort of average will be set up: all will reproduce—not exactly of course, but approximately—the same signs united with the same concepts.

How does the social crystallization of language come about? Which parts of the circuit are involved? For all parts probably do not participate equally in it.

The nonpsychological part can be rejected from the outset. When we hear people speaking a language that we do not know, we perceive the sounds but remain outside the social fact because we do not understand them.

Neither is the psychological part of the circuit wholly responsible: the executive side is missing, for execution is never carried out by the collectivity. Execution is always individual, and the individual is always its master: I shall call the executive side speaking [parole].

Through the functioning of the receptive and co-ordinating faculties, impressions that are perceptibly the same for all are made on the minds of speakers. How can that social product be pictured in such a way that language will stand apart from everything else? If we could embrace the sum of word-images stored in the minds of all individuals, we could identify the social bond that constitutes language. It is a storehouse filled by the members of a given community through their active use of speaking, a grammatical

system that has a potential existence in each brain, or, more specifically, in the brains of a group of individuals. For language is not complete in any speaker; it exists perfectly only within a collectivity.

In separating language from speaking we are at the same time separating: (1) what is social from what is individual; and (2) what is essential from what is accessory and more or less accidental.

Language is not a function of the speaker; it is a product that is passively assimilated by the individual. It never requires premeditation, and reflection enters in only for the purpose of classification, which we shall take up later (pp. 122 ff.).

P. —Speaking, on the contrary, is an individual act. It is wilful and intellectual. Within the act, we should distinguish between: (1) the combinations by which the speaker uses the language code for expressing his own thought; and (2) the psychophysical mechanism that allows him to exteriorize those combinations.

Note that I have defined things rather than words; these definitions are not endangered by certain ambiguous words that do not have identical meanings in different languages. For instance, German *Sprache* means both "language" and "speech"; *Rede* almost corresponds to "speaking" but adds the special connotation of "discourse." Latin *sermo* designates both "speech" and "speaking," while *lingua* means "language," etc. No word corresponds exactly to any of the notions specified above; that is why all definitions of words are made in vain; starting from words in defining things is a bad procedure.

To summarize, these are the characteristics of language:

1) Language is a well-defined object in the heterogeneous mass of speech facts. It can be localized in the limited segment of the speaking-circuit where an auditory image becomes associated with a concept. It is the social side of speech, outside the individual who can never create nor modify it by himself; it exists only by virtue of a sort of contract signed by the members of a community. Moreover, the individual must always serve an apprenticeship in order to learn the functioning of language; a child assimilates it only gradually. It is such a distinct thing that a man deprived of the use of speaking retains it provided that he understands the vocal signs that he hears.

2) Language, unlike speaking, is something that we can study separately. Although dead languages are no longer spoken, we can easily assimilate their linguistic organisms. We can dispense with the other elements of speech; indeed, the science of language is possible only if the other elements are excluded.

3) Whereas speech is heterogeneous, language, as defined, is homogeneous. It is a system of signs in which the only essential thing is the union of meanings and sound-images, and in which both parts of the sign are psychological.

4) Language is concrete, no less so than speaking; and this is a help in our study of it. Linguistic signs, though basically psychological, are not abstractions; associations which bear the stamp of collective approval—and which added together constitute language—are realities that have their seat in the brain. Besides, linguistic signs are tangible; it is possible to reduce them to conventional written symbols, whereas it would be impossible to provide detailed photographs of acts of speaking [*actes de parole*]; the pronunciation of even the smallest word represents an infinite number of muscular movements that could be identified and put into graphic form only with great difficulty. In language, on the contrary, there is only the sound-image, and the latter can be translated into a fixed visual image. For if we disregard the vast number of movements necessary for the realization of sound-images in speaking, we see that each sound-image is nothing more than the sum of a limited number of elements or phonemes that can in turn be called up by a corresponding number of written symbols (see pp. 61 ff.). The very possibility of putting the things that relate to language into graphic form allows dictionaries and grammars to represent it accurately, for language is a storehouse of sound-images, and writing is the tangible form of those images.

### 3. Place of Language in Human Facts: Semiology

The foregoing characteristics of language reveal an even more important characteristic. Language, once its boundaries have been marked off within the speech data, can be classified among human phenomena, whereas speech cannot.

We have just seen that language is a social institution; but several features set it apart from other political, legal, etc. institutions.

We must call in a new type of facts in order to illuminate the special nature of language.

Language is a system of signs that express ideas, and is therefore comparable to a system of writing, the alphabet of deaf-mutes, symbolic rites, polite formulas, military signals, etc. But it is the most important of all these systems.

*A science that studies the life of signs within society* is conceivable; it would be a part of social psychology and consequently of general psychology; I shall call it *semiology*<sup>3</sup> (from Greek *sēmeîon* ‘sign’). Semiology would show what constitutes signs, what laws govern them. Since the science does not yet exist, no one can say what it would be; but it has a right to existence, a place staked out in advance. Linguistics is only a part of the general science of semiology; the laws discovered by semiology will be applicable to linguistics, and the latter will circumscribe a well-defined area within the mass of anthropological facts.

To determine the exact place of semiology is the task of the psychologist.<sup>4</sup> The task of the linguist is to find out what makes language a special system within the mass of semiological data. This issue will be taken up again later; here I wish merely to call attention to one thing: if I have succeeded in assigning linguistics a place among the sciences, it is because I have related it to semiology.

Why has semiology not yet been recognized as an independent science with its own object like all the other sciences? Linguists have been going around in circles: language, better than anything else, offers a basis for understanding the semiological problem; but language must, to put it correctly, be studied in itself; heretofore language has almost always been studied in connection with something else, from other viewpoints.

There is first of all the superficial notion of the general public: people see nothing more than a name-giving system in language (see p. 65), thereby prohibiting any research into its true nature.

<sup>3</sup> *Semiology* should not be confused with *semantics*, which studies changes in meaning, and which Saussure did not treat methodically; the fundamental principle of semantics is formulated on page 75. [Ed.]

<sup>4</sup> Cf. A. Naville, *Classification des Sciences*, (2nd. ed.), p. 104. [Ed.] The scope of semiology (or semiotics) is treated at length in Charles Morris' *Signs, Language and Behavior* (New York: Prentice-Hall, 1946). [Tr.]

Then there is the viewpoint of the psychologist, who studies the sign-mechanism in the individual; this is the easiest method, but it does not lead beyond individual execution and does not reach the sign, which is social.

Or even when signs are studied from a social viewpoint, only the traits that attach language to the other social institutions—those that are more or less voluntary—are emphasized; as a result, the goal is by-passed and the specific characteristics of semiological systems in general and of language in particular are completely ignored. For the distinguishing characteristic of the sign—but the one that is least apparent at first sight—is that in some way it always eludes the individual or social will.

In short, the characteristic that distinguishes semiological systems from all other institutions shows up clearly only in language where it manifests itself in the things which are studied least, and the necessity or specific value of a semiological science is therefore not clearly recognized. But to me the language problem is mainly semiological, and all developments derive their significance from that important fact. If we are to discover the true nature of language we must learn what it has in common with all other semiological systems; linguistic forces that seem very important at first glance (e.g., the role of the vocal apparatus) will receive only secondary consideration if they serve only to set language apart from the other systems. This procedure will do more than to clarify the linguistic problem. By studying rites, customs, etc. as signs, I believe that we shall throw new light on the facts and point up the need for including them in a science of semiology and explaining them by its laws.

#### *Chapter IV*

### LINGUISTICS OF LANGUAGE AND LINGUISTICS OF SPEAKING

In setting up the science of language within the overall study of speech, I have also outlined the whole of linguistics. All other ele-

ments of speech—those that constitute speaking—freely subordinate themselves to the first science, and it is by virtue of this subordination that the parts of linguistics find their natural place.

Consider, for example, the production of sounds necessary for speaking. The vocal organs are as external to language as are the electrical devices used in transmitting the Morse code to the code itself; and phonation, i.e., the execution of sound-images, in no way affects the system itself. Language is comparable to a symphony in that what the symphony actually is stands completely apart from how it is performed; the mistakes that musicians make in playing the symphony do not compromise this fact.

An argument against separating phonation from language might be phonetic changes, the alterations of the sounds which occur in speaking and which exert such a profound influence on the future of language itself. Do we really have the right to pretend that language exists independently of phonetic changes? Yes, for they affect only the material substance of words. If they attack language as a system of signs, it is only indirectly, through subsequent changes of interpretation; there is nothing phonetic in the phenomenon (see p. 84). Determining the causes of phonetic changes may be of interest, and the study of sounds will be helpful on this point; but none of this is essential: in the science of language, all we need do is to observe the transformations of sounds and to calculate their effects.

What I have said about phonation applies to all other parts of speaking. The activity of the speaker should be studied in a number of disciplines which have no place in linguistics except through their relation to language.

The study of speech is then twofold: its basic part—having as its object language, which is purely social and independent of the individual—is exclusively psychological; its secondary part—which has as its object the individual side of speech, i.e. speaking, including phonation—is psychophysical.

Doubtless the two objects are closely connected, each depending on the other: language is necessary if speaking is to be intelligible and produce all its effects; but speaking is necessary for the establishment of language, and historically its actuality always comes first. How would a speaker take it upon himself to associate an idea

with a word-image if he had not first come across the association in an act of speaking? Moreover, we learn our mother language by listening to others; only after countless experiences is it deposited in our brain. Finally, speaking is what causes language to evolve: impressions gathered from listening to others modify our linguistic habits. Language and speaking are then interdependent; the former is both the instrument and the product of the latter. But their interdependence does not prevent their being two absolutely distinct things.

Language exists in the form of a sum of impressions deposited in the brain of each member of a community, almost like a dictionary of which identical copies have been distributed to each individual (see p. 13). Language exists in each individual, yet is common to all. Nor is it affected by the will of the depositaries. Its mode of existence is expressed by the formula:

$$1 + 1 + 1 + 1 \dots = I \text{ (collective pattern)}$$

What part does speaking play in the same community? It is the sum of what people say and includes: (a) individual combinations that depend on the will of speakers, and (b) equally wilful phonational acts that are necessary for the execution of these combinations.

Speaking is thus not a collective instrument; its manifestations are individual and momentary. In speaking there is only the sum of particular acts, as in the formula:

$$(1 + 1' + 1'' + 1''' \dots)$$

For all the foregoing reasons, to consider language and speaking from the same viewpoint would be fanciful. Taken as a whole, speech cannot be studied, for it is not homogeneous; but the distinction and subordination proposed here clarify the whole issue.

Such is the first bifurcation that we find in trying to formulate the theory of speech. We must choose between two routes that cannot be followed simultaneously; they must be followed separately.

One might if really necessary apply the term linguistics to each of the two disciplines and speak of a linguistics of speaking. But

that science must not be confused with linguistics proper, whose sole object is language.

I shall deal only with linguistics of language, and if I subsequently use material belonging to speaking to illustrate a point, I shall try never to erase the boundaries that separate the two domains.

### *Chapter V*

#### INTERNAL AND EXTERNAL ELEMENTS OF LANGUAGE

My definition of language presupposes the exclusion of everything that is outside its organism or system—in a word, of everything known as “external linguistics.” But external linguistics deals with many important things—the very ones that we think of when we begin the study of speech.

First and foremost come all the points where linguistics borders on ethnology, all the relations that link the history of a language and the history of a race or civilization. The close interaction of language and ethnography brings to mind the bonds that join linguistic phenomena proper (see pp. 7 f.). The culture of a nation exerts an influence on its language, and the language, on the other hand, is largely responsible for the nation.

Second come the relations between language and political history. Great historical events like the Roman conquest have an incalculable influence on a host of linguistic facts. Colonization, which is only one form that conquest may take, brings about changes in an idiom by transporting it into different surroundings. All kinds of facts could be cited as substantiating evidence. For instance, Norway adopted Danish when she united politically with Denmark; the Norwegians are trying today to throw off that linguistic influence. The internal politics of states is no less important to the life of languages; certain governments (like the Swiss) allow the coexistence of several idioms; others (like the French) strive for linguistic unity. An advanced state of civilization

favors the development of special languages (juridical language, scientific terminology, etc.).

Here we come to a third point: the relations between language and all sorts of institutions (the Church, the school, etc.). All these institutions in turn are closely tied to the literary development of a language, a general phenomenon that is all the more inseparable from political history. At every point the literary language oversteps the boundaries that literature apparently marks off; we need only consider the influence of *salons*, the court, and national academies. Moreover, the literary language raises the important question of conflicts between it and local dialects (see pp. 195 ff.); the linguist must also examine the reciprocal relations of book language and the vernacular; for every literary language, being the product of the culture, finally breaks away from its natural sphere, the spoken language.

Finally, everything that relates to the geographical spreading of languages and dialectal splitting belongs to external linguistics. Doubtless the distinction between internal and external linguistics seems most paradoxical here, since the geographical phenomenon is so closely linked to the existence of any language; but geographical spreading and dialectal splitting do not actually affect the inner organism of an idiom.

Some have maintained that the foregoing issues simply cannot be separated from the study of language proper. The viewpoint has been prevalent especially since the placing of so much emphasis on "Realia."<sup>5</sup> Just as the inner organism of a plant is modified by alien forces (terrain, climate, etc.) does not the grammatical organism depend constantly on the external forces of linguistic change? It seems that we can scarcely give a satisfactory explanation of the technical terms and loan-words that abound in language without considering their development. Is it possible to distinguish the natural, organic growth of an idiom from its artificial forms, such as the literary language, which are due to external, and therefore inorganic forces? Common languages are always developing alongside local dialects.

<sup>5</sup> *Realien* is used in German to refer to all material facts of life, the shape, dimensions, and the like of objects, things, etc. Cf. the numerous works in German entitled *Reallexicon*. [Tr.]

I believe that the study of external linguistic phenomena is most fruitful; but to say that we cannot understand the internal linguistic organism without studying external phenomena is wrong. Take as an example the borrowing of foreign words. We observe from the outset that borrowing is not a constant force in the life of a language. In certain isolated valleys there are dialects that have never taken a single artificial term from the outside. Should we say that such idioms are outside the conditions of normal speech and that they require "teratological"<sup>6</sup> study inasmuch as they have never suffered admixture? More important still, a loan-word no longer counts as such whenever it is studied within a system; it exists only through its relation with, and opposition to, words associated with it, just like any other genuine sign. Knowledge of the circumstances that contributed to the development of a language, generally speaking, is never indispensable. For certain languages—e.g. Zend and Old Slavic—even the identity of the original speakers is unknown, but lack of such information in no way hinders us in studying these languages internally and learning about the transformations that they have undergone. In any case, separation of the two viewpoints is mandatory, and the more rigidly they are kept apart, the better it will be.

The best proof of the need for separating the two viewpoints is that each creates a distinct method. External linguistics can add detail to detail without being caught in the vise of a system. Each writer, for instance, will group as he sees fit facts about the spreading of a language beyond its territory. If he looks for the forces that created a literary language beside local dialects, he can always use simple enumeration. If he arranges the facts more or less systematically, he will do this solely for the sake of clarity.

In internal linguistics the picture differs completely. Just any arrangement will not do. Language is a system that has its own arrangement. Comparison with chess will bring out the point. In chess, what is external can be separated relatively easily from what is internal. The fact that the game passed from Persia to Europe is external; against that, everything having to do with its system and rules is internal. If I use ivory chessmen instead of wooden ones, the change has no effect on the system; but if I decrease or

<sup>6</sup> 'Pertaining to the study of monsters,' see p. 54, footnote. [Tr.]

increase the number of chessmen, this change has a profound effect on the "grammar" of the game. One must always distinguish between what is internal and what is external. In each instance one can determine the nature of the phenomenon by applying this rule: everything that changes the system in any way is internal.

## *Chapter VI*

# GRAPHIC REPRESENTATION OF LANGUAGE

### *1. Need for Studying the Subject*

The concrete object of linguistic science is the social product deposited in the brain of each individual, i.e. language. But the product differs with linguistic groups: we have to work with languages. The linguist is obliged to acquaint himself with the greatest possible number of languages in order to determine what is universal in them by observing and comparing them.

But we generally learn about languages only through writing. Even in studying our native language, we constantly make use of written texts. The necessity of using written evidence increases when dealing with remote idioms, and all the more when studying idioms that no longer exist. We would have direct texts at our disposal in every instance only if people had always done what is now being done in Paris and Vienna. There, samples of all languages are being recorded. Even so, recorded specimens could be made available to others only through writing.

Writing, though unrelated to its inner system, is used continually to represent language. We cannot simply disregard it. We must be acquainted with its usefulness, shortcomings, and dangers.

### *2. Influence of Writing; Reasons for Its Ascendance over the Spoken Form*

Language and writing are two distinct systems of signs; the second exists for the sole purpose of representing the first. The linguistic object is not both the written and the spoken forms of

words; the spoken forms alone constitute the object. But the spoken word is so intimately bound to its written image that the latter manages to usurp the main role. People attach even more importance to the written image of a vocal sign than to the sign itself. A similar mistake would be in thinking that more can be learned about someone by looking at his photograph than by viewing him directly.

This illusion, which has always existed, is reflected in many of the notions that are currently bandied about on the subject of language. Take the notion that an idiom changes more rapidly when writing does not exist. Nothing could be further from the truth. Writing may retard the process of change under certain conditions, but its absence in no way jeopardizes the preservation of language. The oldest written texts of Lithuanian, which is still spoken in eastern Prussia and in a part of Russia, date from 1540; but the language of even that late period offers a more faithful picture of Proto-Indo-European than does Latin of 300 b.c. This one example is enough to show the extent to which languages are independent of writing.

Certain very slight linguistic facts have been preserved without the help of any notation. During the whole Old High German period, people wrote *tōten*, *fuolen*, *stōzen*; near the end of the twelfth century the forms *tōten*, *füelen* appeared, but *stōzen* subsisted. How did the difference originate? Wherever the umlaut occurred, there was a *y* in the following syllable. Proto-Germanic had *\*daupyan*, *\*folyan*, but *\*stautan*. At the very beginning of the literary period (about 800) the *y* became so weak that no trace of it appears in writing for three centuries; still, a slight trace had remained in the spoken form; that is how it miraculously reappeared as an umlaut around 1180! Without the help of writing, a slight difference in pronunciation was accurately transmitted.

Thus language does have a definite and stable oral tradition that is independent of writing, but the influence of the written form prevents our seeing this. The first linguists confused language and writing, just as the humanists had done before them. Even Bopp failed to distinguish clearly between letters and sounds. His works give the impression that a language and its alphabet are insepa-

rable. His immediate successors fell into the same trap; the transcription *th* (for the fricative *b*) caused Grimm to think not only that *th* was a double sound but also that it was an aspirated occlusive, and he accordingly assigned it a specific place in his law of consonantal mutation or *Lautverschiebung* (see p. 144). Scholars still confuse language and writing. Gaston Deschamps said that Berthelot "had saved French from ruin" because he had opposed spelling reform!

But how is the influence of writing to be explained?

1) First, the graphic form of words strikes us as being something permanent and stable, better suited than sound to account for the unity of language throughout time. Though it creates a purely fictitious unity, the superficial bond of writing is much easier to grasp than the only true bond, the bond of sound.

2) Most people pay more attention to visual impressions simply because these are sharper and more lasting than aural impressions; that is why they show a preference for the former. The graphic form manages to force itself upon them at the expense of sound.

3) The literary language adds to the undeserved importance of writing. It has its dictionaries and grammars; in school, children are taught from and by means of books; language is apparently governed by a code; the code itself consists of a written set of strict rules of usage, orthography; and that is why writing acquires primary importance. The result is that people forget that they learn to speak before they learn to write, and the natural sequence is reversed.

4) Finally, when there is a disagreement between language and orthography, settlement of the dispute is difficult for everyone except the linguist; and since he is given no voice in the matter, the written form almost inevitably wins out, for any solution supported by it is easier; thus writing assumes undeserved importance.

### 3. *Systems of Writing*

There are only two systems of writing:

1) In an ideographic system each word is represented by a single sign that is unrelated to the sounds of the word itself. Each written

sign stands for a whole word and, consequently, for the idea expressed by the word. The classic example of an ideographic system of writing is Chinese.

2) The system commonly known as "phonetic" tries to reproduce the succession of sounds that make up a word. Phonetic systems are sometimes syllabic, sometimes alphabetic, i.e., based on the irreducible elements used in speaking.

Moreover, ideographic systems freely become mixtures when certain ideograms lose their original value and become symbols of isolated sounds.

The statement that the written word tends to replace the spoken one in our minds is true of both systems of writing, but the tendency is stronger in the ideographic system. To a Chinese, an ideogram and a spoken word are both symbols of an idea; to him writing is a second language, and if two words that have the same sound are used in conversation, he may resort to writing in order to express his thought. But in Chinese the mental substitution of the written word for the spoken word does not have the annoying consequences that it has in a phonetic system, for the substitution is absolute; the same graphic symbol can stand for words from different Chinese dialects.

I shall limit discussion to the phonetic system, and especially to the one used today, the system that stems from the Greek alphabet.<sup>7</sup>

<sup>7</sup> The correspondence between Saussure's system of transcription and that recommended by the International Phonetic Association is roughly as follows:

SAUSSURE IPA		SAUSSURE IPA	
p [p]	pin	l [l]	let
b [b]	bin	r [r]	run
m [m]	man	i [i]	repeat
t [t]	ten	u [u]	boot
d [d]	dig	ü [y]	French pur
n [n]	not	ɛ, è [ɛ]	pet
k [k]	cat	ɔ, é [e]	chaotic
g [g]	get	ẽ [ɛ̃]	French vin
ň [ŋ]	thing	ø [ɔ̃]	ought
f [f]	fox	ø [õ]	notation
v [v]	vixen	õ [ɔ̃]	French bon
þ [θ]	thin	ö [œ̃]	French seul
ð [ð]	then	ö [ø̃]	French creuse
s [s]	sing	ö [œ̃]	French un

When first devised a phonetic alphabet—unless borrowed and already marked by inconsistencies—gives a fairly rational representation of language. With respect to logic, Greek is especially noteworthy (see p. 64). But the harmonious relation between writing and pronunciation does not last. Why? This question must be examined.

#### 4. Reasons for the Discrepancy between Writing and Pronunciation

Of the numerous causes of lack of agreement between writing and pronunciation, I shall recall only the more important ones.

First, language is constantly evolving, whereas writing tends to remain stable. The result is that a point is reached where writing no longer corresponds to what it is supposed to record. A transcription that is accurate at a particular moment will be absurd a century later. For a time people may change their graphic symbols to conform with changes in pronunciation, then relinquish the effort. This happened in French in the case of *oi*:

Pronunciation	Written Forms
Eleventh Century . . . . 1 <i>rei</i> , <i>lei</i>	<i>rei</i> , <i>lei</i>
Thirteenth Century . . . . 2 <i>roi</i> , <i>loi</i>	<i>roi</i> , <i>loi</i>
Fourteenth Century . . . . 3 <i>roè</i> , <i>loè</i>	<i>roi</i> , <i>loi</i>
Nineteenth Century . . . . 4 <i>rwa</i> , <i>lwa</i>	<i>roi</i> , <i>loi</i>

Up until period 2 changes in pronunciation were recorded; each step in the history of the language was matched by a corresponding step in the history of writing. But after the fourteenth century the written form of the words remained unchanged while the evolution of the language continued; from that moment the discrepancy between the language and its orthography increased progressively. Finally, the practice of joining discordant terms had its repercussion on the graphic system itself: the combination *oi* acquired a value that was unrelated to either *o* or *i*.

<i>z</i>	[z]	zero	<i>a</i>	[ɑ]	father
<i>š</i>	[ʃ]	sure	<i>ã</i>	[ã]	French blanc
<i>ž</i>	[ʒ]	azure	<i>w</i>	[w]	wait
<i>x'</i>	[ç]	German <i>ich</i>	<i>y</i>	[j]	yes
<i>x</i>	[x]	German <i>doch</i>	<i>ə</i>	[ə]	above

See especially pages 46–49. [Tr.]

Such examples could be multiplied indefinitely. For instance, why should the French write *mais* ‘but’ and *fait* ‘fact’ when the words are pronounced *mè* and *fè*? Why does *c* often have the value of *s*? The answer is that French has retained outmoded spellings.

Spelling always lags behind pronunciation. The *l* in French is today changing to *y*; speakers say *éveyer*, *mouyer*, just as they say *essuyer* ‘wipe,’ *nettoyer* ‘clean’; but the written forms of these words are still *éveiller* ‘awaken,’ *mouiller* ‘soak.’

Another reason for discrepancy between spelling and pronunciation is this: if an alphabet is borrowed from another language, its resources may not be appropriate for their new function; expedients will have to be found (e.g. the use of two letters to designate a single sound). Take the voiceless dental fricative *þ* of the Germanic languages. Since Latin had no sign for this sound, *th* was used. The Merovingian king Chilperic tried to add a special symbol for this sound to the Latin alphabet, but his attempt was unsuccessful and *th* won acceptance. During the Middle Ages English had a closed *e* (e.g. *sed*) and an open *e* (e.g. *led*); since the alphabet failed to provide distinct symbols for the two sounds, the spellings *seed* and *lead* were devised. French uses the double symbol *ch* to stand for hushing *š*, etc.

The influence of etymology also helps to widen the gap between spelling and pronunciation. It has been especially strong during certain periods (e.g. the Renaissance). Even a false etymology often forces itself into the spelling of a word: *d* was inserted in French *poids* ‘weight’ as if the word were derived from Latin *pondus*; *poids* actually comes from *pensum*.<sup>8</sup> Whether the application of the principle is correct matters little; the fallacy is in spelling words according to their etymology.

Other reasons for the discrepancy are not so obvious; some absurdities cannot be excused even on etymological grounds. Why was *thun* used instead of *tun* in German? The *h* was said to represent the aspiration that followed the initial consonant; but it would have to be inserted wherever aspiration occurs, and many similar words were never written with *h* (*Tugend*, *Tisch*, etc.).

<sup>8</sup> Cf. English *island*, derived from *ig* ‘island’ and *land* ‘land’ but influenced by *isle*, and *doubt*, derived from Old French *douter* but later changed to conform with Latin *dubitare*. [Tr.]

### 5. Results of the Discrepancy

To classify the inconsistencies of writing would take too long. One salient disadvantage is the multiplicity of symbols that stand for the same sound. For ź French uses *j*, *g*, *ge* (*joli* ‘pretty,’ *geler* ‘freeze,’ *geai* ‘jay’); for *z*, both *z* and *s*; for *s*, *c*, *ç* and *t* (*nation* ‘nation’), *sc* (*acquiescer* ‘acquiesce’), *sç* (*acquiesçant* ‘acquiescent’), *x* (*dix* ‘ten’); and for *k* it uses *c*, *qu*, *k*, *ch*, *cc*, *cqu* (*acquérir* ‘acquire’). Conversely, a single symbol stands for several values: *t* stands for *t* or *s*, *g* for *g* or *ź*, etc.<sup>9</sup>

“Indirect spellings” also merit our attention. There is no double consonant in *Zettel*, *Teller*, etc.; German uses *tt*, *ll*, etc. for the sole purpose of indicating that the preceding vowel is open and short. Through a similar aberration English adds a final silent *e* to lengthen the preceding vowel: *mad*, *made*. The *e*, which actually affects only the preceding syllable, creates a second syllable for the eye.

These irrational spellings still stand for something in language; but others have neither rime nor reason. French has no double consonants except the old futures *mourrai* ‘(I) shall die,’ *courrai* ‘(I) shall run,’ etc.; yet illegitimate double consonants abound in the orthography of the language (*bourru* ‘surly,’ *sottise* ‘foolishness,’ *souffrir* ‘suffer,’ etc.).

Being unstable and striving always for regularity, writing may vacillate at times; the result is fluctuating orthographies that stem from efforts to record sounds at different periods. Take *ertha*, *erdha*, *erda*, or *thrī*, *dhrī*, *drī* in Old High German: *th*, *dh*, *d* stand for the same phonic element. But which element? Writing does not provide the answer. The complication that arises is this: confronted with two spellings for the same word, we cannot always decide whether two pronunciations are actually represented. Suppose that texts of neighboring dialects show the spelling *asca* for a word in one of the dialects and *ascha* for the same word in the other; if the sound is the same, the transcriptions point to an orthographic fluctuation; if not, the difference is phonological and dialectal, as in the Greek forms *paízō*, *paízdō*, *paíddō*. Or two successive periods may be

<sup>9</sup> The discrepancy between spelling and pronunciation is of course more striking in English than in French: two perfectly riming sounds are written *fight* and *bite*; *c* stands for the same sound as both *s* and *k*; etc. [Tr.]

involved. The English forms *hwat*, *hweel*, etc. were later replaced by *what*, *wheel*, etc. Does this point to a graphic change or to a phonetic change?

The preceding discussion boils down to this: writing obscures language; it is not a guise for language but a disguise. That fact is clearly illustrated by the spelling of French *oiseau* 'bird.' Not one spoken sound (*wazɔ*) is indicated by its own symbol. Here writing fails to record any part of the picture of language.

Another result is that the less writing represents what it is supposed to represent, the stronger the tendency to use it as a basis becomes. Grammarians never fail to draw attention to the written form. Psychologically, the tendency is easily explained, but its consequences are annoying. Free use of the words "pronounce" and "pronunciation" sanctions the abuse and reverses the real, legitimate relationship between writing and language. Whoever says that a certain letter must be pronounced a certain way is mistaking the written image of a sound for the sound itself. For French *oi* to be pronounced *wa*, this spelling would have to exist independently; actually *wa* is written *oi*. To attribute the oddity to an exceptional pronunciation of *o* and *i* is also misleading, for this implies that language depends on its written form and that certain liberties may be taken in writing, as if the graphic symbols were the norm.

False notions about the relationship between sound and graphic symbols appear even in grammatical rules, as in the case of French *h*. Some words that begin with an unaspirated vowel are written with *h* through remembrance of their Latin forms: *homme* 'man' (formerly *ome*) because of Latin *homo*. But in words of Germanic origin, initial *h* was actually pronounced: *hache* 'hatchet,' *hareng* 'herring,' *honte* 'shame,' etc. As long as aspiration was used, words of Germanic origin obeyed the laws governing initial consonants: speakers said *deu haches* 'two hatchets,' *le hereng* 'the herring'; other words obeyed the laws governing initial vowels; speakers said *deu-z-ommes* 'two men,' *l'omme* 'the man.' For that period the rule, "Liaison and elision do not occur before aspirated *h*," was correct. But nowadays the formula is meaningless. Aspirated *h* no longer exists unless the label is applied to something which is not

a sound but which prevents liaison and elision. Again we are involved in a vicious circle, and *h* is but a fictitious offspring of writing.

The pronunciation of a word is determined, not by its spelling, but by its history. The form of a word at a particular moment stands for a moment in its enforced evolution. Precise laws govern its evolution. Each step is determined by the preceding step. The only thing to consider is the one most often forgotten: the evolution of the word, its etymology.

The name of the town of *Auch* is *oš* in phonetic transcription. That is the only French word in which final *ch* stands for *š*. But we explain nothing by saying, "Final *ch* is pronounced *š* only in *Auch*." The only question that concerns us is this: How could Latin *Auscii* have changed to *oš*? Orthography is unimportant.

Should French *gageure* 'wager' be pronounced with *ö* or *ü*? Some speakers say: *gažör*, for *heure* 'hour' is pronounced *ör*. Others say: No, it is *gažür*, for *ge* is equivalent *ž*, as in *geôle* 'jail.' The argument is pointless. The real issue is etymological: *gageure* was formed from *gager* 'earn' just as *tournure* 'figure' was formed from *tourner* 'turn'; only *gažür* is justifiable; *gažör* is due solely to the equivocal nature of writing.

But the tyranny of writing goes even further. By imposing itself upon the masses, spelling influences and modifies language. This happens only in highly literate languages where written texts play an important role. Then visual images lead to wrong pronunciations; such mistakes are really pathological.<sup>10</sup> Spelling practices cause mistakes in the pronunciation of many French words. For instance, there were two spellings for the surname Lefèvre (from Latin *faber*), one popular and simple, the other learned and etymological: *Lefèvre* and *Lefèvre*. Because *v* and *u* were not kept apart in the old system of writing, *Lefèbre* was read as *Lefèbure*, with a *b* that had never really existed and a *u* that was the result of ambiguity. Now, the latter form is actually pronounced.

Mispronunciations due to spelling will probably appear more frequently as time goes on, and the number of letters pronounced

<sup>10</sup> *Pathology* was given currency in French by Littré. It was used subsequently by Gilliéron and Darmsteter as well as by Saussure. See note 6. [Tr.]

by speakers will probably increase. Some Parisians already pronounce the *t* in *sept femmes* ‘seven women’;<sup>11</sup> Darmsteter foresees the day when even the last two letters of *vingt* ‘twenty’ will be pronounced—truly an orthographic monstrosity.

Such phonic deformations belong to language but do not stem from its natural functioning. They are due to an external influence. Linguistics should put them into a special compartment for observation: they are teratological cases.<sup>12</sup>

## *Chapter VII*

### PHONOLOGY<sup>13</sup>

#### 1. *Definition*

Whoever consciously deprives himself of the perceptible image of the written word runs the risk of perceiving only a shapeless and unmanageable mass. Taking away the written form is like depriving a beginning swimmer of his life belt.

To substitute immediately what is natural for what is artificial would be desirable; but this is impossible without first studying the sounds of language; apart from their graphic symbols, sounds are only vague notions, and the prop provided by writing, though deceptive, is still preferable. The first linguists, who knew nothing about the physiology of articulated sounds, were constantly falling into a trap; to me, it means a first step in the direction of truth, for the study of sounds themselves furnishes the desired prop. Modern

<sup>11</sup> The pronunciation [sə] is now obsolescent. Cf. the trend toward pronouncing the *t* in *often*. [Tr.]

<sup>12</sup> Saussure's terminology is reminiscent of the biological parlance of Gilliéron (e.g. in *Pathologie et thérapeutique verbales*, Paris, 1921). [Tr.]

<sup>13</sup> Saussure later modifies and expands his definition of phonology (see especially pp. 34, 42 ff., 117 ff. and 131). Only M. Grammont has followed Saussure's practice. English and American linguists often use phonology to indicate the historical study of sounds or the study of the functioning of sounds in a particular language, phonetics for the study of the modalities of sounds used in speaking, and phonemics (corresponding to French *phonologie* and German *Phonologie*) for the study of the distinctive sounds of language. [Tr.]

linguists have finally seen the light; pursuing for their own ends investigations started by others (physiologists, theoreticians of singing, etc.), they have given linguists an auxiliary science that has freed it from the written word.

The physiology of sounds (German *Laut-* or *Sprachphysiologie*) is often called phonetics (French *phonétique*, German *Phonetik*). To me this name seems inappropriate. Instead, I shall use phonology. For phonetics first designated—and should continue to designate—the study of the evolutions of sounds. Two absolutely distinct disciplines should not be lumped together under the same name. Phonetics is a historical science; it analyses events and changes, and moves through time. Phonology is outside time, for the articulatory mechanism never changes.

The two studies are distinct but not opposites. Phonetics is a basic part of the science of language; phonology—this bears repeating—is only an auxiliary discipline and belongs exclusively to speaking (see pp. 17 ff.). Just what phonational movements could accomplish if language did not exist is not clear; but they do not constitute language, and even after we have explained all the movements of the vocal apparatus necessary for the production of each auditory impression, we have in no way illuminated the problem of language. It is a system based on the mental opposition of auditory impressions, just as a tapestry is a work of art produced by the visual oppositions of threads of different colors; the important thing in analysis is the role of the oppositions, not the process through which the colors were obtained.

An outline of the phonological system is given in the Appendix; here I am trying merely to determine the extent to which phonology can help linguistics to escape the delusions of writing.

## 2. *Phonological Writing*

The linguist needs above all else a means of transcribing articulated sounds that will rule out all ambiguity. Actually, countless graphic systems have been proposed.

What are the requirements for a truly phonological system of writing? First, there should be one symbol for each element of the spoken chain. This requirement is not always considered. Thus English phonologists, concerned with classification rather than

analysis, have two- and three-letter symbols for certain sounds. Second, there should be some means for making a rigid distinction between implosive and explosive sounds (see pp. 49 ff.).

Are there grounds for substituting a phonological alphabet for a system already in use? Here I can only broach this interesting subject. I think that phonological writing should be for the use of linguists only. First, how would it be possible to make the English, Germans, French, etc. adopt a uniform system! Next, an alphabet applicable to all languages would probably be weighed down by diacritical marks; and—to say nothing of the distressing appearance of a page of phonological writing—attempts to gain precision would obviously confuse the reader by obscuring what the writing was designed to express. The advantages would not be sufficient to compensate for the inconveniences. Phonological exactitude is not very desirable outside science.

Reading is another issue. We read in two ways: a new or unknown word is spelled out letter by letter; but a common, ordinary word is embraced by a single glance, independently of its letters, so that the image of the whole word acquires an ideographic value. Here traditional orthography takes revenge. It is useful to distinguish between French *tant* 'so much' and *temps* 'weather'; *et* 'and,' *est* 'is,' and *ait* 'have'; *du* 'of the' and *dû* 'had to'; *il devait* 'he owed' and *ils devaient* 'they owed,' etc.<sup>14</sup> Let us hope only that the most flagrant absurdities of writing will be eliminated. Although a phonological alphabet is helpful in the teaching of languages, its use should not be generalized.

### 3. *Validity of Evidence Furnished by Writing*

One must not think that spelling reform should immediately follow the realization that writing is deceptive. The genuine contribution of phonology is in providing precautionary measures for dealing with the written form through which we must pass in order to reach language. Evidence furnished by writing is valid only when interpreted. We must draw up for each language studied a *phonological system*, i.e. a description of the sounds with which it functions; for each language operates on a fixed number of well-differentiated phonemes. This system is the only set of facts that

<sup>14</sup> Cf. English *sow* and *sew*; *to*, *too*, and *two*; *due* and *dew*, etc. [Tr.]

interests the linguist. Graphic symbols bear but a faint resemblance to it; the difficulty of determining the accuracy of the resemblance varies according to the idiom and circumstances.

The linguist who deals with a language of the past has only indirect data at his disposal. What resources can he use in setting up its phonological system?

1) First and foremost is *external evidence*, especially contemporary descriptions of the sounds and pronunciations of the period. French grammarians of the sixteenth and seventeenth centuries, especially those interested in teaching foreigners, left us many interesting observations. But the information contained in the writings of contemporaries is often vague, for the authors have no phonological method. The terminology of their descriptions is whimsical and lacks scientific precision. The result is that their evidence must in turn be interpreted. Names given to sounds, for instance, are often misleading: Greek grammarians called voiced *b*, *d*, *g*, etc. "middle" consonants (*mésai*), and voiceless *p*, *t*, *k*, etc. *psīlai*, which Latin grammarians translated by *tenues*.

2) More accurate information will result from combining external data with internal evidence, which I shall class under two headings.

a) The first class comprises evidence based on the *regularity of phonetic evolutions*. Knowing what sound a letter stood for during another period is important in determining the value of that letter. Its present value is the result of an evolution that allows us to cast aside certain hypotheses from the outset. For instance, the exact value of Sanskrit *c* is unknown, but the fact that it replaced palatal Proto-Indo-European *k* clearly limits the field of conjecture.

If the linguist knows both the point of departure and the parallel evolution of similar sounds of a particular language during the same period, he can use analogical reasoning and set up a proportion.

Naturally, the problem of determining an intermediate pronunciation is easier when both the starting point and the end result are unknown. French *au* (e.g. in *sauter* 'jump') must have been a diphthong during the Middle Ages, for it is half-way between older *al* and modern *o*. And if we learn by some other means that the diphthong still existed at a particular moment, we

are safe in assuming that it also existed during the preceding period. We do not know exactly what *z* stands for in a word like Old High German *wazer*; but our guideposts are the older form *water* on the one hand and Modern German *Wasser* on the other. The *z* must be a sound half-way between *t* and *s*; we can reject any hypothesis that fails to consider both *t* and *s*; to hold that *z* stands for a palatal sound, for example, would be impossible, for only a dental articulation can logically come between two other dental articulations.

*b)* There are several types of *contemporary evidence*. Spelling differences furnish one of many types. During one period we find that Old High German has *wazer*, *zehan*, *ezan* but never *wacer*, *cchan*, etc. When we find the forms *esan* and *essan*, *waser* and *wasser*, etc., however, we easily conclude that the sound of *z* was close to *s* but different from the sound that *c* stood for during the same period. The subsequent appearance of such forms as *wacer* proves that the two originally distinct phonemes became somewhat mingled.

Poetic texts are invaluable documents in the study of pronunciation. They furnish many types of information, depending on whether the system of versification is based on the number of syllables, quantity, or similarity of sounds (alliteration, assonance, and rime). Greek indicated certain long vowels in writing (e.g. *ō*, transcribed *ω*) but not others. We must consult the poets in order to find out about the quantity of *a*, *i*, and *u*. Thus rime allows us to determine until what period the final consonants of Old French *gras* and *faz* (Latin *faciō* 'I do') were different and from what moment they were brought together and merged. Rime and assonance also show that *e* derived from Latin *a* (e.g. *père* 'father' from *patrem*, *tel* 'such' from *talem*, *mer* 'sea' from *mare*) was not pronounced like other *e*'s. These words never appear in rime or assonance with *elle* 'she' (from *illa*), *vert* 'green' (from *viridem*), *belle* 'beautiful' (from *bella*), etc.

Finally there is the evidence furnished by the spelling of loan-words, puns, cock-and-bull stories, etc. In Gothic, for example, *kawisjo* reveals information about the pronunciation of *cautio* in Vulgar Latin. That French *roi* 'king' was pronounced *rwè* at the end of the eighteenth century is attested by the following story cited by Nyrop (*Grammaire historique de la langue française*,

p. 178): A woman who had been brought before the revolutionary tribunal was asked whether she had not said in the presence of witnesses that a king (*roi*) was needed; she replied "that she was not speaking of a king like Capet or the others at all, but of a *rouet maître* 'spinning wheel.' "

All the foregoing procedures help us to acquire some knowledge of the phonological system of a period as well as to interpret and use profitably the evidence furnished by writing.

In dealing with a living language, the only rational method consists of (a) setting up the system of sounds as revealed by direct observation, and (b) observing the system of signs used to represent—imperfectly—these sounds. Many grammarians still hold to the old method that I have criticized and simply tell how each letter is pronounced in the language they wish to describe. By using the older method, however, they cannot present clearly the phonological system of an idiom.

Nevertheless, great strides in the right direction have already been taken, and phonologists have made an important contribution toward reforming our ideas about writing and spelling.

# APPENDIX

## Principles of Phonology

### *Chapter I*

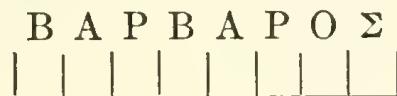
#### PHONOLOGICAL SPECIES

##### 1. *Definition of the Phoneme*

[For this part we were able to use a stenographic reproduction of three lectures given by Saussure in 1897, "Théorie de la syllabe," in which he also touches upon the general principles discussed in Chapter I; moreover, much of the material in his personal notes deals with phonology; on many points, the notes illuminate and complete the data furnished by Courses I and III. (Editors' note.)]

Many phonologists limit themselves almost exclusively to the phonational act, i.e. the production of sound by the vocal organs (larynx, mouth, etc.) and neglect the auditory side. Their method is wrong. Not only does the auditory impression come to us just as directly as the image of the moving vocal organs, but it is also the basis of any theory. Auditory impressions exist unconsciously before phonological units are studied; our ear tells us what *b*, *t*, etc. are. Even if all the movements made by the mouth and larynx in pronouncing a chain of sounds could be photographed, the observer would still be unable to single out the subdivisions in the series of articulatory movements; he would not know where one sound began and the next one ended. Without the auditory impression, how can we say that in *fal*, for instance, there are three units rather than two or four? But when we hear a sound in a spoken chain, we can identify it immediately; as long as there is an impression of homogeneity, the sound is unique. What matters is not the length of the sound (cf. *fāl* and *fäl*) but the quality of the impression. The sound-chain is not divided into equal beats but into homogeneous ones; each beat is characterized by unity of impression, and that is the natural point of departure for phonology.

Here the early Greek alphabet is noteworthy. Each simple sound is represented in Greek by a single graphic sign, and each sign always stands for the same simple sound. The Greek alphabet was an ingenious discovery that was later handed down to the Romans. In the transcription of *bárbaros* 'barbarian,' each letter corresponds to a homogeneous beat:



In the drawing above, the horizontal line stands for the phonetic chain, and the short vertical bars indicate passage from one sound to another. In the early Greek alphabet there are no complex graphs like English *sh* for *s*, no interchangeable letters for single sounds like *c* and *s* for *s*, no single signs for double sounds like *x* for *ks*. A one-to-one ratio between sounds and graphs—the necessary and sufficient basis for a good phonological system of writing—was realized almost completely by the Greeks.<sup>1</sup>

Other nations did not grasp this principle, and their alphabets do not analyze the spoken chain according to its homogeneous auditory beats. The Cypriots, for example, stopped at more complex units like *pa*, *ti*, *do*, etc. Such notation is called syllabic, but this name is hardly accurate since there are still other types of syllables (e.g. *pak*, *tra*, etc.). The Semites indicated only the consonants. They would have transcribed a word like *bárbaros* as BRBRS.

Delimitation of the sounds of the spoken chain can be based only on auditory impressions; but description of these sounds is an entirely different process. Description can be carried out only on

<sup>1</sup> To be sure, they wrote *X*,  $\phi$ , *O* for *kh*, *th*, *ph*;  $\phi$ EPO stands for *phéro*; but this is a later innovation; archaic inscriptions read KHAΠΙΣ and not XΑΠΙΣ. The same inscriptions have two signs for *k*, *kappa* and *koppa*, but the situation is different: two real differences in pronunciation were involved, *k* being sometimes palatal and sometimes velar; besides, *koppa* later disappeared. Finally—and this is a more subtle point—in early Greek and Latin inscriptions a double consonant is often indicated by a simple letter (e.g. Latin *fuisse*, written FUISE); this is an infraction of the principle since the double *s* lasts two beats—beats that are not homogeneous, as we shall see later, and that make distinct impressions; but the mistake is excusable since the two sounds have a common characteristic even though they are distinct (cf. pp. 51 ff.). [S.]

the basis of the articulatory act, for it is impossible to analyze the units of sound in their own chain. We must go back to the movements involved in phonation; there, a given sound obviously corresponds to a given act: *b* (auditory beat) = *b'* (articulatory beat). The first units obtained by cutting the spoken chain are made up of *b* and *b'*; they are phonemes; a phoneme is the sum of the auditory impressions and articulatory movements, the unit heard and the unit spoken, each conditioning the other: thus it is a complex unit with a foot in each chain.

The elements first obtained through analysis of the spoken chain are like the links of this chain: they are irreducible moments that cannot be studied outside the time that they occupy. A grouping like *ta*, for instance, will always be one moment plus another, one fragment of a certain length plus another. Against this, the irreducible *t*, taken separately, can be studied in the abstract, outside time. We can speak of *t* in general as the *T* species (I use capitals to indicate species), of *i* in general as the *I* species, etc. if we consider only the distinctive character of a sound and neglect everything that depends on succession in time. Similarly, a musical series *do, re, mi* can be treated only as a concrete series in time, but if I select one of its irreducible elements, I can study it in the abstract.

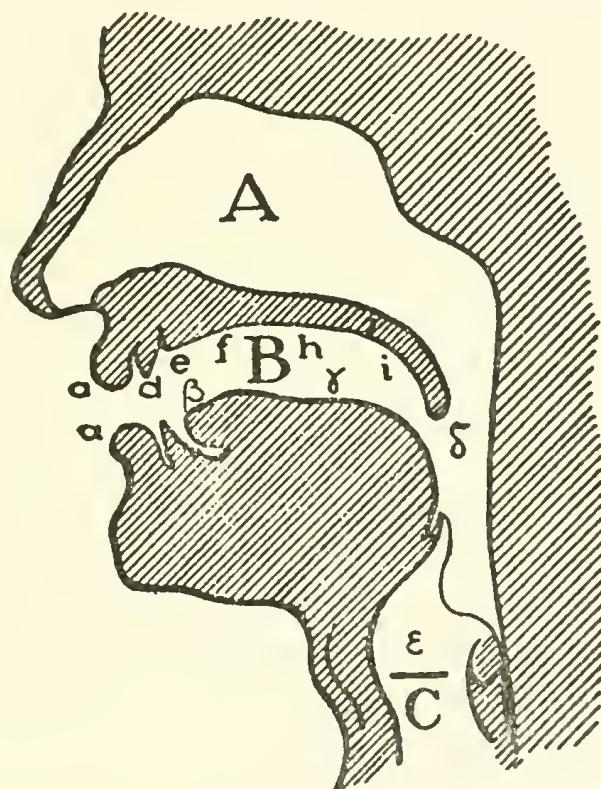
Having analyzed a sufficient number of spoken chains from different languages, the phonologist can identify and classify the elements with which each language operates. Then, if he ignores acoustically unimportant variations, he will find that the number of species is not indefinite. Special works list these species and describe them in detail.<sup>2</sup> Here I wish merely to show the simple, invariable principles upon which any such classification is based.

But first let me say a few words about the vocal apparatus, the possible functioning of the different organs, and the role of these same organs as producers of sound.

<sup>2</sup> Cf. Sievers, *Grundzüge der Phonetik*, fifth ed., 1902; Jespersen, *Lehrbuch der Phonetik*, second ed., 1913; Roudet, *Eléments de phonétique générale*, 1910. [Ed.]

## 2. *The Vocal Apparatus and Its Functioning*<sup>3</sup>

1) I limit description of the vocal apparatus to a schematic drawing in which *A* designates the nasal cavity, *B* the oral cavity, and *C* the larynx (with the glottis  $\varepsilon$  between the two vocal cords).



In the mouth, the parts of the vocal apparatus that should be singled out are these: the lips  $\alpha$  and  $\tilde{\alpha}$ ; the tongue  $\beta$ — $\gamma$  ( $\beta$  designating the point and  $\gamma$  the rest); the upper teeth  $d$ ; the palate, made up of the bony hard palate  $f-h$  in the front and the movable membrane or soft palate  $i$  in the back; and, finally, the uvula  $\delta$ .

The Greek letters indicate organs that are active during articulation; the Latin letters identify the passive parts.

The glottis  $\varepsilon$ , made up of two parallel muscles or vocal cords, opens when the cords are drawn apart and closes when they come together. Complete closure does not occur; the opening is sometimes wide, sometimes narrow. When the opening is wide, allowing

<sup>3</sup> Saussure's brief description has been supplemented by material based on Jespersen's *Lehrbuch der Phonetik*, from which we have also borrowed the principle used in setting up the table of phonemes below (see pp. 44 ff.). But we are merely carrying out Saussure's intent, and the reader may be assured that these additions do not alter his thought in any way. [Ed.]

the air to pass freely, no vibration is heard; voicing occurs when air passes through a narrow opening, causing the cords to vibrate. There is no other alternative in the normal emission of sounds.

The nasal cavity is a completely immobile organ; the stream of air can be stopped only by raising the uvula  $\delta$ ; it is an open or a closed door.

The oral cavity offers a wide range of possibilities; the lips can be used to increase the length of the channel, the jaws can be puffed out or drawn in, and a great variety of movements of the lips and tongue can be used to contract or even to close the cavity.

The role played by the same organs in producing sounds is directly proportional to their mobility; uniformity in the functioning of the larynx and nasal cavity is matched by diversity in the functioning of the oral cavity.

Air that is expelled from the lungs first passes through the glottis. It is possible to produce a laryngeal sound by tightening the vocal cords, but the larynx cannot produce phonological varieties that allow us to separate and classify the sounds of language; in this respect, the laryngeal sound is uniform. Perceived directly as it emitted by the glottis the sound seems to have an almost invariable quality.

The nasal channel serves as nothing more than a resonator for the vocal vibrations that pass through it. It does not function as a producer of sound.

The oral cavity, on the contrary, functions both as a producer of sound and as a resonator. When the glottis is wide-open, there is no laryngeal vibration; the sound that is heard originates in the oral cavity (I leave to the physicist the task of deciding whether it is a sound or merely a noise). But when tightening of the vocal cords causes the glottis to vibrate, the mouth serves mainly to modify the laryngeal sound.

In short, the factors involved in the production of sound are expiration, oral articulation, vibration of the larynx, and nasal resonance.

But simple enumeration does not identify the differential properties of phonemes. In classifying phonemes, what constitutes them is of much less importance than what distinguishes them from each other. A negative force can be more important in classifying a

phoneme than a positive one. Thus expiration, a positive element that is part of every phonational act, has no differentiating value; but nasal resonance may characterize phonemes by its absence, a negative force, just as well as by its presence. The important thing is that two of the elements enumerated above are constant, and that they are necessary and sufficient for the production of sound:

- a) expiration
- b) oral articulation;

whereas the other two may be either absent or superimposed on the first two:

- c) vibration of the larynx
- d) nasal resonance.

Moreover, we know that while *a*, *c*, and *d* are uniform, *b* makes possible the production of many varieties of sounds.

We should also bear in mind that a phoneme is identified when its phonational act is determined, and that all species of phonemes will be determined when all phonational acts are identified. The foregoing classification of forces involved in the production of sound shows that phonational acts are differentiated only by *b*, *c*, and *d*. For each phoneme we must determine its oral articulation, whether a laryngeal sound is present (~~) or absent ([ ]), and whether nasal resonance is present (....) or absent ([ ]). When one of these three is unknown, the identification of a sound is incomplete. But as soon as all three are known, their different combinations determine all the basic species of phonational acts.

The following table gives the possible variations:

I	II	III	IV
<i>a</i> Expiration	Expiration	Expiration	Expiration
<i>b</i> Oral Articulation	Oral Articulation	Oral Articulation	Oral Articulation
<i>c</i> [ ]	~~	[ ]	~~
<i>d</i> [ ]	[ ]	....	....

Column I designates voiceless sounds, II voiced sounds, III voiceless nasalized sounds, and IV voiced nasalized sounds.

But one unknown remains: the nature of the oral articulation;

therefore, the most important thing is to determine the possible varieties of oral articulation.

### *3. Classification of Sounds According to Their Oral Articulation*

Sounds are generally classed according to the place of their articulation. My point of departure will be different. Regardless of where articulation takes place, there is always a certain *aperture*, i.e., a certain degree of opening that ranges between two extremes, complete closure and maximum opening. On that basis, and proceeding from minimum to maximum aperture, sounds will fall into seven categories that I shall designate by the numbers 0, 1, 2, 3, 4, 5, 6. Only within each category shall I distribute phonemes into different types according to their place of articulation.

I shall conform to current terminology even though it is imperfect or incorrect at many points: words like guttural, palatal, dental, liquid, etc. are all more or less illogical. A more rational plan would be to divide the palate into a certain number of areas. Then by focusing attention on lingual articulation, it would always be possible to specify the main point of contact. In devising a formula, I shall draw upon this notion and use the letters of the sketch of the vocal apparatus (see p. 41): the number of the aperture is placed between a Greek letter (indicating an active organ) and a Latin letter (indicating a passive organ). Thus  $\beta Oe$  means that complete closure is maintained while the tip of the tongue is placed against the upper alveolar ridge.

Finally, within each articulation the different species of phonemes are marked by concomitant features—laryngeal sound and nasal resonance—which differentiate by their absence as well as by their presence.

The two accompanying features and the formula provide a simple, rational means of classifying phonemes. Of course, one should not expect to find here phonemes that have a complex or special character, regardless of their practical importance (e.g. the aspirates *ph*, *dh*, etc.; the affricates *tš*, *dž*, *pf*, etc.; palatalized consonants; weak vowels like *ə* or mute *e*, etc.). Nor should one expect to find simple phonemes that have no practical importance and that are not considered differentiated sounds.

### A. Zero Aperture: Occlusives

Occlusives include all phonemes produced by complete closure, the airtight but brief sealing of the oral cavity. This is not the place to discuss whether a sound is produced when closure or release occurs; actually it may be produced in either way (see pp. 51 ff.).

The three main types of occlusives are named according to their places of articulation: labials (*p, b, m*); dentals (*t, d, n*); and gutturals (*k, g, ḥ*).

The first type is articulated with the lips; for the second, the tip of the tongue is placed against the front of the palate; for the third, the back of the tongue makes contact with the back part of the palate.

Many languages, notably the Indo-European, make a distinction between two guttural articulations, one palatal (in the *f-h* area) and the other velar (in the *i* area), but elsewhere (e.g. in English) the difference goes unnoticed and the ear likens a back *k* (such as the sound of *c* in *cart*) to a front *k* (as in *king*).

The following table gives the formulas for the various occlusive phonemes:

LABIALS			DENTALS			GUTTURALS		
<i>p</i>	<i>b</i>	( <i>m</i> )	<i>t</i>	<i>d</i>	( <i>n</i> )	<i>k</i>	<i>g</i>	( <i>ḥ</i> )
$\alpha Oa$	$\alpha Oa$	$\alpha Oa$	$\beta Oe$	$\beta Oe$	$\beta Oe$	$\gamma Oh$	$\gamma Oh$	$\gamma Oh$
[ ]	~~	~~	[ ]	~~	~~	[ ]	~~	~~
[ ]	[ ]	....	[ ]	[ ]	....	[ ]	[ ]	....

Nasal *m, n*, and *ḥ* are really voiced nasalized occlusives; in pronouncing *amba*, one raises the uvula to close the nasal fossae in shifting from *m* to *b*.

In theory, each type has a voiceless nasal—a nasal sound unaccompanied by glottal vibration; thus voiceless *m* occurs after a voiceless sound in the Scandinavian languages; French also has voiceless nasals, but speakers do not look upon them as differential elements.

Nasals are put inside parentheses in the table; although the

mouth is completely closed during their articulation, the opening of the nasal channel gives them wider aperture (see Class C).

### B. Aperture 1: Fricatives or Spirants

The phonemes of Class B are characterized by incomplete closure which allows the air to pass through the oral cavity. The name spirant is all too general; while the word fricative tells nothing about the degree of closure, it does suggest friction resulting from the expulsion of air (Latin *fricāre*).

The phonemes of Class B, unlike those of Class A, do not fall into three types. First, labials proper (corresponding to *p* and *b*) are rarely used; I shall disregard them; they are ordinarily replaced by labiodentals, which are produced by contact between the lower lip and upper teeth (*f* and *v*). Dentals are divided into several varieties, depending on the shape which the tip of the tongue takes on making contact; without going into detail, I shall use  $\beta$ ,  $\beta'$ , and  $\beta''$  to designate the different shapes of the tip of the tongue. Among the sounds that involve the palate, the ear generally singles out a front articulation (palatal) and a back articulation (velar).<sup>4</sup>

LABIO-DENTALS		DENTALS					
<i>f</i>	<i>v</i>	$\beta$	$\delta$	<i>s</i>	<i>z</i>	$\check{s}$	$\check{z}$
$\alpha Id$ [ ]	$\alpha Id$ ~~	$\beta Id$ [ ]	$\beta Id$ ~~	$\beta' Id$ [ ]	$\beta' Id$ ~~	$\beta'' Id$ [ ]	$\beta'' Id$ ~~

PALATALS		GUTTURALS	
$x'$	$\gamma'$	$x$	$\gamma$
$\gamma If$ [ ]	$\gamma If$ ~~	$\gamma Ii$ [ ]	$\gamma Ii$ ~~

- $\beta$  = English *th* in *thing*
- $\delta$  = " *th* in *then*
- s* = " *s* in *say*
- z* = " *s* in *rose*
- $\check{s}$  = " *sh* in *show*
- $\check{z}$  = " *g* in *rouge*
- $x'$  = German *ch* in *ich*
- $\gamma'$  = North German *g* in *liegen*
- $x$  = German *ch* in *Bach*
- $\gamma$  = North German *g* in *Tage*

<sup>4</sup> Faithful to his method, Saussure did not think it necessary to make the same distinction, for Class A, in spite of the importance of the two series K<sub>1</sub> and K<sub>2</sub> in Proto-Indo-European. The omission is deliberate. [Ed.]

Is there a sound among the fricatives to match *n*, *m*, *ñ*, etc. among the occlusives—i.e. a nasal *v*, *z*, etc.? It is easy to imagine that there is; for instance, a nasal *v* is heard in French *inventer* ‘invent’; but in most languages the nasal fricative is not a distinctive sound.<sup>5</sup>

### C. *Aperture 2: Nasals* (see above, p. 46)

### D. *Aperture 3: Liquids*

Two kinds of articulation are classed as liquids.

(1) In lateral articulation (indicated by *l* in the formulas below) the tongue rests against the front palate but leaves an opening on both sides. It is possible to single out, according to the place of articulation, dental *l*, palatal *l'*, and guttural or velar *l̄*. In most languages lateral phonemes are voiced in the same way as *b*, *z*, etc. Still, a voiceless lateral is not impossible; it exists even in French, where an *l* that follows a voiceless phoneme may be pronounced without the laryngeal sound (e.g. the *l* of *pluie* ‘rain’ against the *l* of *bleu* ‘blue’); but speakers are not conscious of the difference.

There is no point in discussing nasal *l*, which is very rare and nondifferentiating, although it does occur, especially after a nasal sound (e.g. the *l* in French *branlant* ‘shaking’).

(2) In vibrant articulation (indicated by *v* in the formula below) the tongue is held farther from the palate than for *l*, but a variable number of contacts between the tongue and palate makes the aperture for vibrants equivalent to the aperture for laterals. Vibration is produced in two ways: with the tip of the tongue thrust forward against the alveolar ridge (trilled *r*), or with the back of the tongue in contact with the palate (a dorsal *r* or burr). What was said about voiced or nasal laterals is also applicable to vibrants.

<i>l</i>	<i>l'</i>	<i>l̄</i>	<i>r</i>	
$\beta'3e$	$\gamma'3f-h$	$\gamma'3i$	$\beta v3e$	$\gamma 3o v$
[ ]	[ ]	[ ]	[ ]	[ ]

<sup>5</sup> The French reads, “mais en générale la fricative nasale n'est pas un son dont la langue ait conscience.” [Tr.]

Beyond aperture 3, we enter into a new field; from *consonants* we pass to *vowels*. Up to this point, I have not brought up the distinction between the two for a very simple reason: the phonational mechanism is the same for both. The formula for a vowel is comparable in every way to the formula for a voiced consonant. From the viewpoint of oral articulation, no distinction need be made. Only the acoustical effect is different. Beyond a certain degree of aperture, the mouth functions mainly as a resonator: the timbre of the laryngeal sound stands out, and oral noise decreases. How much of the laryngeal sound is cut out depends on how tightly the mouth is closed; the wider the mouth is opened, the more noise lessens; thus sound predominates in vowels through a purely mechanical process.

#### E. Aperture 4: *i, u, ü*

The vowels of Class E require much more closure than the other vowels—almost as much as consonants. Certain consequences that will appear later justify the name semi-vowels, which is generally given to phonemes of Class E.

The phoneme *i* is pronounced with retracted lips (—) and front articulation, *u* with rounded lips (○) and back articulation, and *ü* with the lip position of *u* and the articulation of *i*.

Like all other vowels, *i*, *u*, and *ü* have nasalized forms. Here we can disregard them since they are rare. It is worth noting, however, that the sounds written *in* and *un* in French are really not nasalized *i* and *u* (see below).

Is there a voiceless *i*, i.e. articulated without a laryngeal sound? The same question arises for *u* and *ü*, and for all vowels. Such phonemes, corresponding to voiceless consonants, exist but are not to be confused with whispered vowels, i.e., vowels articulated with the glottis relaxed. Voiceless vowels are like the aspirated *h*'s that are pronounced before them: in *hi*, an *i* with no vibration is first heard, then a normal *i*.

#### F. Aperture 5: *e, o, ö*

<i>i</i>	<i>u</i>	<i>ü</i>
— 4f	○ 4i	○ 4f
~~	~~	~~
[ ]	[ ]	[ ]

The articulation of the phonemes of Class F corresponds exactly to the articulation of *i*, *u*, *ü*. Nasalized vowels occur frequently (e.g. French *ē*, *ō*, *ō̄* as in *pin* ‘pine,’ *pont* ‘bridge,’ *brun* ‘brown’). Voiceless forms are the aspirated *h* of *he*, *ho*, *hō̄*.

N. B. Many languages single out several degrees of aperture within Class F; French, for instance, has at least two series, one closed (*e*, *o*, *ō* as in *dé* ‘thimble,’ *dos* ‘back,’ *deux* ‘two’) and the other open (*ɛ*, *ɔ*, *ō̄* as in *mer* ‘sea,’ *mort* ‘death,’ *meurtre* ‘murder’).

e	o	ö	ẽ	ō	ō̄
—5f ~~~	○5i ~~~	○5f ~~~	—5f ~~~	○5i ~~~	○5f ~~~
[ ]	[ ]	[ ]	....	....	....

a	ã	G. Aperture 6: a
—6i ~~~	—6i ~~~	The <i>a</i> has maximum aperture. This vowel has a nasalized form, <i>ã</i> —slightly more contracted, to be sure—and a voiceless form, the <i>h</i> of <i>ha</i> .
[ ]	....	

## Chapter II

### PHONEMES IN THE SPOKEN CHAIN

#### 1. Need for Studying Sounds in the Spoken Chain

Detailed analyses of speech sounds can be found in special treatises, especially in the works of English phoneticians.

Do detailed analyses alone fulfill the auxiliary role of phonology in the science of linguistics? Such a mass of details has no value in itself; only synthesis matters. The linguist does not need to be a consummate phonologist; he asks only to be given certain data that are necessary for the study of language.

The method of phonology is particularly faulty at one point: phonologists too often forget that language is made up not only of