

without change of form, yet not, like Chinese roots, in virtue of an original indefiniteness of meaning, but as one distinct part of speech is in our usage convertible directly into others; nor can it be said that, even as they stand, they are altogether formless; for each is defined in certain relations by the absence of formative elements which it would otherwise exhibit: water is shown to be singular by lacking an s, fish and like to be plural by the absence of s from like.

5. Professor Schleicher, indeed, adopts this emblem as that of the Indo-European root also, since he holds the view, briefly stated and controverted above (in the eighth lecture, p. 293), that the radicals of our family were originally liable to a regular variation, of symbolic significance, for purposes of grammatical expression. I regard it, on the contrary, as the weak point in his system, as applied by himself, that it does not distinguish an internal flection like the Semitic — which, so far as we can trace its history, is ultimate and original, and which continues in full force, in old material and in new formations, through the whole history of the languages — from one like the Indo-European, which is rather secondary and accidental, constantly arising in new cases under the influence of phonetic circumstances, but never winning a pervading force, and in many members of the family hardly taking on anywhere a regular form and office, as significant of relations.

6. See the latter's Charakteristik etc., pp. 70, 327.

CHAPTER EIGHTEEN

EDUARD SIEVERS

FOUNDATIONS OF PHONETICS

From Grundzüge der Phonetik zur Einführung in das Studium der Lautlehre der indogermanischen Sprachen
(Leipzig: Breitkopf & Härtel, 1901⁸), pp. 1-9, 267-69, 272

The most definitive achievement of nineteenth-century linguistics may be in articulatory phonetics. By the end of the century Jespersen, Sweet, Sievers and others had gained a control of the subject which has been surpassed only in details. Accordingly, sections from one of the standard works on phonetics have been chosen as the last in this anthology.

These sections indicate that Sievers held some linguistic views which we generally consider characteristics of more recent linguistics. Section 11 stresses the importance of system in language; entities are to be defined in it. Section 14 speaks of "individual sounds" as abstractions which are dependent on the point of view of the linguist; this statement is not unlike definitions of the phoneme given in the 1930's. Possibly most notable is Sievers' insistence that the sentence is the minimum linguistic unit. Like other views given in these few sections, this is remarkably in keeping with those held today; one wonders why it had so little influence in 1876 and during the subsequent decades when Sievers' handbook was revised, reprinted and widely used.

Sievers' views on historical linguistics seem equally contemporary. Sound change is a modification of *Bildungsfaktoren* — formative features. Sound law is temperately defined. These excerpts may illustrate that students will derive greater profit by reading the outstanding works of the neogrammarians and their predecessors than by reading about them.

I. Present Position, Goals and Methods of Phonetics

1. By phonetics we mean the study of the forming of speech, that is, of the production, the characteristics and the use of sounds in the forming of syllables, words and sentences, and finally of the general conditions of their change and decay. Phonetics, then, is a border area between physics, insofar as it is concerned with the acoustic analysis of individual quantities of sound, physiology, insofar as it investigates the functions of the organs which are used in producing and perceiving speech, and finally linguistics, insofar as it gives information about the nature of one of its important aims.

2. Only for the two above-mentioned scientific disciplines can the investigation of the origin and the nature of the individual sounds from which a language is constructed be an end in itself. For the linguist, phonetics is only an ancillary science. Accordingly the interest of the individual disciplines in its different sub-areas will vary. The task and most important goal of scientific investigation is to ascertain the general, basic laws concerning the nature, formation and utilization of the speech sounds. The linguist's task on the other hand is to pursue these basic laws into all the ramifications which have taken place in the various languages and dialects and to make the results of this specialized research useful to his scholarly aims. The natural scientist will accordingly be concerned with the general, the theoretical, while the linguist is primarily interested in the specific data and their particular application to the material to the study of which he dedicates himself.

3. Within the wide area included in the study of language, the studies which are directed at the investigation of living languages undoubtedly have the most direct and practically significant part in the discoveries relating to the nature of linguistic phenomena, which phonetics is able to provide; for only on the basis of a knowledge of phonetics can the facts in the pronunciation of the various idioms be determined. The recognition of the accuracy of this statement has become increasingly widespread, and accordingly practical phonetic research has striven more and more to meet the needs of the modern study of language. It has directed itself particularly toward obtaining reliable material for study while limiting theoretical discussion as much as possible, and reducing this material to simple rules in keeping with practical demands. The success which these attempts have had, is adequate proof that the path begun was the correct one for the solution to this undertaking. It seems all the more doubtful whether the unduly great emphasis placed upon the so-called experimental phonetics with its purely mechanical measuring and representation, even by some who formerly represented the practical position, will in the long run work more to the advantage than to

the detriment of the physiological side of the discipline, notwithstanding a series of results with practical value, which experimental phonetics has thus far produced.

4. The relation of phonetics to historical-comparative linguistics is also different from its role for the investigator of living languages. The practical aspect of phonetics is here important only insofar as it may be necessary to ascertain the pronunciation of the living members of a language or dialect group whose history is to be investigated. The linguist needs such identification especially to augment the incomplete pictures of linguistic phenomena which the incomplete writing systems of ancient and modern times afford; for only too often do these systems conceal peculiarities of pronunciation which are of importance in the development of the language. But the center of the interest that linguistic research has in phonetics surely lies in another area. Phonetics must enlighten the historical linguist first of all concerning the nature, the development and the relationships of the various phonetic processes whose beginning and end he has determined by means of a historical study of language. It can do this because it shows him series of developmental stages in the comparison of living languages and dialects, which in turn, by suggesting analogies, lead him to reliable conclusions concerning the course of development of the individual language, and because it represents for him, in paradigm form, the relationship between the force which conditions linguistic change and the individual examples of the resulting change, again from the example of living language. The historical linguist, then, needs detailed, individual descriptions of the pronunciation of a given idiom less than does a scholar who is investigating a modern language; and he has even less need to construct a general system in which the individual sounds of the various languages are once and for all ordered according to a definite arrangement. One can even say that while for the theoretical phonetician the system and the precise analysis of individual sound classes and sounds which result from it stand in the center of interest, the historical linguist who pursues the historically attested changes and shifts of precisely these formations will derive the most benefit from systematic consideration precisely of the points of contact between the individual subclassifications which the systematizer sets up and tries to keep distinct as best he can.

5. It would be impossible for any single presentation of phonetics to do justice to the demands of all the above-mentioned areas of interest. For the phonetician with interests in science, the specialized linguistic material which is necessary for the philologist and linguist will scarcely ever be available in any quantity. Moreover he lacks interest, since even a very large accumulation of

material can offer him no real help in the formulation of the general statements concerning language formation, for which he is striving. Still further afield for him are the historical linguist's problems of the development of language. And again only the smallest number of those who lean toward philology will want to or be able to follow the scientist in the details of his anatomical, physiological and physical research. Granted that some one individual might succeed in assembling all the knowledge necessary for presenting a comprehensive survey of phonetics, and in putting this down in a textbook of general phonetics, such a work would still not meet the needs of the student, who, after all, almost invariably approaches phonetics with a limited range of interest and accordingly brings to the subject an understanding for only one or the other portion of it, not for all.

6. Because of these considerations it seems necessary to abandon all thoughts of a general survey of phonetics in favor of individual presentations which direct greater attention to the particular requirements of the various areas of interest, while touching upon only the most essential aspects of the subject as a whole, and that but briefly. The present study, for example, is aimed at one such specialized field. In the first place it is intended to be an introduction to the study of the phonology of the older Indo-European languages, approximately in the extent to which they are represented in the "Library of Indo-European Grammars"; and it tries to do justice to this task by orienting the reader through selected examples about a number of phonetic problems which are pertinent to an understanding of the development of Indo-European phonology. Anything else which is included to make the presentation of the material more complete is intended only as an incidental supplement through which the author attempted, to the best of his ability, to make the book useful to historical linguists outside the field of Indo-European. It will be obvious that the book, because of this emphasis on the historical aspect, is not aimed at the scientist; nor does it meet the needs of the specialist in modern languages, and is useful in their teaching only insofar as that which is of use to the historical linguist may also be of use in language teaching.

7. It lies in the very nature of the problem that a certain amount of work with the spoken language is indispensable for any training in phonetics. A mere description will never be able to convey accurately all the fine points of pronunciation which determine the real character of a language or dialect, and along with it often the particular direction of its further development, while the ear trained through oral practice is readily able to grasp these. It may be most readily possible to present the basic scientific laws of language formation theoretically while keeping them generally understandable. But the greater phonetics is to be made useful for the

practical purposes of teaching languages or linguistic research, the more instruction of the teacher must be replaced by direct observation on the part of the learner himself. A textbook of phonetics, then, if it is to be useful to the student of linguistics, must be essentially nothing other than an introduction to the proper use of observation, which in turn affords the student the solid foundation for the practical utilization of the phonetic principles which have been acquired in this way.

8. It follows that the task of the language teacher, whose field of observation is limited essentially to the normal pronunciation of the language he is teaching, is relatively simple. The scholar engaged in research, on the other hand, cannot consider such restriction. The more complicated the phonological problems whose solution he is seeking may be, the more comprehensive and secure his survey of the conditions of development of living idioms must be, if he is to avoid continually exposing himself to the danger of reaching for false means of explanation.

9. Above all, the serious student of language who hopes to realize concrete profit for his science through the study of phonetics must strive from the beginning to free himself from a number of prejudices to which the scholar is driven, partially through the schools, partially through the practical activity of living, and from which learned circles are least of all free. The first of these prejudices is the opinion that normal or natural speech is found only in the languages of writing or culture. The necessary presupposition for this doctrine, the basic unity of languages, exists only on paper; a tremendous number of opinions will, therefore, become entangled in an insoluble conflict if, in accordance with bad habits of the past, the individual arbitrarily attributes his own pronunciation to the letters of a writing system, and makes this the only basis for his conclusions concerning foreign languages. And even if there did actually exist somewhere a relatively large entity within a language (a phenomenon which could only be developed, as experience shows, through artificial cultivation starting from a writing system transmitted from an earlier period of the language), how could the views derived from it help to explain the development of language, which so often moves from a condition of simplicity to one of complexity? Furthermore, the individual modern languages are too distant from one another to permit with requisite certainty from comparison of them alone relatively general statements concerning the development of sounds and of speech. Dialects must be used to fill the gap, since they alone are in a position to supply the links missing in the standard languages. Furthermore, dialects are generally in a position to give the observer a much clearer picture of the consistency of pronunciation and the development of sounds than do the written

and standard languages, which at any time not only exhibit a mixture of sound and speech forms, having widely divergent origins, but also are constantly subject to a large number of unpredictable influences from individual speakers than is the idiom of the lower classes which is transmitted only through the unconscious and therefore more steady tradition of oral communication.

10. Each linguist must accordingly use dialects which are familiar to him from his youth as the starting point for all studies in phonetics. If an actual folk dialect is not available to him, he must at least adhere to the natural and easy colloquial speech of the educated people of his home, and not to the generally artificially contrived and therefore often contradictory manner of speaking of the schools, the pulpit, the theater, or the drawing room. Only when he has achieved complete clarity with regard to all phonetic phenomena of his own dialect should he turn to the study first of related dialects and languages, and finally to those more distant. If it is feasible, one should attempt to attain perfect fluency in one or more dialects.

11. Some additional comments will be found below, in the concluding remarks to chapter 11, especially concerning the particulars of examining the sound systems of related dialects as one's study progresses. But even here it must be pointed out most emphatically that the tasks of historical phonetics cannot be solved with a mere statistical consideration of individual sounds and their changes. For in general it is not the individual sound which undergoes change according to certain universally valid laws, but rather there is usually a corresponding development of corresponding series of sounds in corresponding positions (cf. for example the uniform shift of the series of *tenuēs*, *mediae* and *aspiratae* in the Germanic consonant shift, or the transformation of entire vowel systems through increase or diminution of the specific articulation of the vowels, etc.); generally specific points of view can also be discovered which help explain the change of one such series of sounds from the overall constitution of the system as well as of the particular position of that series in it.

12. Above all, then, one should seek an exact insight into the structure of every phonological system which must be treated. One will do well always to remember that this is determined not so much by the number of sounds themselves which happen to be mixed together in the system as by the relationship of these individual members with one another; and furthermore that the acoustic impression of a sound is not the essential thing, but rather the manner in which it is formed. For what we call sound change is just a secondary result of modifications of one or more of this kind of formative factors through whose interaction a sound is produced.

13. It must be emphasized that the acquisition of such phonetic

training, as that emphasized here from the start, is no easy matter. It requires a tireless, lengthy training of the speech organs, and particularly in connection with the last statement of the hearing. For on the one hand the ear tends to be deaf to a certain extent to sounds which are foreign to it or to the differences of these from sounds which are familiar to it; or when a difference is actually perceived, we often hear intermediates somewhere between the unfamiliar and our own sounds, which arise only through the fact that the impression of one's own sounds blends with that of the corresponding unfamiliar sounds which are heard. On the other hand, because of the insensitivity of hearing to minor differences in the impression of sounds, we often run the risk of attributing such articulations to unfamiliar sounds which one can grasp only through hearing, by means of which one can approach the acoustic effect of them in attempts at imitation, but quite often one's own articulation does not correspond to the unfamiliar ones. One will therefore be able to say that a preliminary conclusion in phonetic training in this direction has only been acquired when the observer is able to perceive correctly any unfamiliar sound, preferably by ear alone, and to characterize it according to its position in its own system as well as its relationship to corresponding sounds of other systems. Cautious occupation with experimental phonetic studies may now and then be useful as a preliminary step in attaining this goal, because it can occasionally clear up deficiencies in the powers of observation especially for the indifferent beginner, which have thus far gone unnoticed. But only he who succeeds in sharpening his senses to such an extent that he need no longer remain subject to the often deceptive, dead apparatus attains complete mastery over his attainment.

14. Current grammatical practice usually takes letters or sounds as a starting point, and then builds up to consideration of syllables, words, and sentences. But it is self-evident that a phonetics which proceeds very systematically would have to begin with the investigation of the sentence, because only the sentence exists in the spoken language as an entity which is given by itself and which can be directly observed. The word, the syllable, the individual sound often take on different forms in the "sentence" (this word is understood in the broader sense in which it is generally used; for the problem itself cf. below, 611 ff); and the individual sound often does not even exist isolated in speech in the absolute form in which it is generally presented in grammars. Therefore the sentence ought to be investigated first, with all the variations which it can experience in oral expression (e.g. those, which the same "sentence" experiences when it is used as simple declarative, as exclamatory, as interrogative, etc., and the like). Only after one has

learned to take these variable characteristics of the sentence into consideration should one go on to the analysis of the sentence itself, that is, to the investigation of the individual rhythmic groups of speech (620 ff.) and of the syllables as components of these rhythmic groups. Only to this should the analysis of syllables as such and of their individual sounds be attached. That which finally results as definition of the individual sound is in the end largely an abstraction dependent on arbitrarily selected points of view which is made from the frequently variable forms under which this so-called individual sound can appear in continuous human speech. For practical reasons it is customary also in the study of phonetics to proceed from the simplest elements to the more complex formations, and this generally adopted method is also retained in the present work. If, however, one adheres to this method, one must always bear in mind the important fact, that we have by no means exhausted all that there is to be said about the nature of the individual sound in living speech with the few things we can express concerning the artificially isolated individual sound. In any case, the construction of a mere sound system, however important it may be in itself, always remains one of the most elementary tasks of the phonetician, in whose realm all the various phenomena of spoken language fall. One should not, then, be content with the study of sounds per se, but must examine with equal exactitude the formation of syllables, of rhythmic units and sentences, always with one's native language as the starting point. The knowledge thus obtained must then be tested by comparing other living languages and dialects, and only when one finds that he is completely equipped for these, should he proceed to the application of phonetic criteria for the elucidation of older stages of speech and their gradual change to their modern representatives.

IV. Sound Change and Sound Development

722. It is usual for the traditional pronunciation of the individual forms of speech, (sounds, groups of sounds, syllables, rhythmic groups, etc.), to change in the course of time. Instead of the early OHG gasti, for example, there is the later (common OHG) gesti and in its stead late OHG and MHG geste; OHG piligrīm with m corresponds to the Latin peregrinus, with n; and the MLG bersten with the sequence er corresponds to the OLG brestan, with re, etc. The term "change in pronunciation" best describes the results of such modifications; but instead the form "sound change" has come into use. And this term is acceptable when one considers that even the sum total of the changes in the pronunciation of complicated

formations (as of a sound group, a syllable, a word) are composed of the changes which the individual sounds of these complexes undergo.

723. Every sound change is based upon inadequate reproduction of the traditional pronunciation. The formation of new forms of pronunciation then originates with a single individual or with a group of individuals and only through imitation are such individual innovations spread adequately throughout larger parts of a speech community, or even its entirety. In the process it is rather unimportant for the further development of a language where the innovation begins, whether within one and the same generation of speakers or in the process of transmitting speech from one generation to the other. Apparently both forms of innovation have a characteristic role in language change.

725. Causes of the Sound Change. Even today the opinion is very widespread that all sound change proceeds from striving toward an easier manner of pronunciation, or in other words that it is always based on a decrease of effort ("sound weakening") and never on an increase ("sound strengthening"). We can admit that many phenomena in the development of languages may be brought under this heading, but in the generality with which the statement is produced it is definitely false. Its incorrectness can readily be seen, even from a very superficial examination of the various historically attested directions of sound development. When an original tenuis becomes a media, that is, when a fortis becomes a lenis, as in the change from Latin patrem to Italian padre, and when this lenis disappears completely as in the corresponding Provençal paire, French père, this clearly must be designated as an instance of weakening. But also the directly opposite series of development is found, as for example on Germanic soil, where we see a ddj arise from simple j (Gothic twaddje from *twaije, etc.) and all original mediae change to tenuis or affricates (Gk déka, Lat. decem, Gothic taihun, OHG zēhan). The sphere of the vowels is similar. For example, the same languages frequently enough (if partly in different periods) show simplification of diphthongs to long vowels and diphthongization of originally simple vowels (OHG mēr, lôn as opposed to Goth. máis, láun; and OHG hiar, fuor as opposed to Goth. hēr, fôr; or Ital. oro beside Lat. aurum and Ital. buono, Pietro beside Lat. bonum, Petrum etc.) Particularly interesting phenomena along this line are found in languages like Danish, which forms its initial tenuis very energetically and with strong aspiration, whereas in medial or final position following a vowel it has permitted them to sink to fricatives of very little energy or even to disappear completely.

726. These few examples are sufficient to show that if the concept of the simplification of pronunciation is to be retained at all, it

must be conceived in a very relative sense (often it will be a question of nothing more than simple fashion). In general it must be carefully noted that differences in difficulty of producing speech sounds are extremely minute, and that actual difficulties with regard to imitation generally exist only with regard to unfamiliar sounds. Just as every part of the human body is particularly trained through special practice for the one service which it performs every day, but becomes less suited or even completely useless for other tasks, so the human speech organs attain a complete mastery of all the articulatory movements, which are required for one's native language, through the practice in the production of sounds and groups of sounds in this language which one carries on continually since childhood. But only of these sounds! After the organs of speech have received special training for and through the service determined for them, everything which falls outside the limits of the familiar articulatory movements seems difficult. Naturally this applies with regard to the sounds of one language as well as another: the Englishman has the same difficulty in pronouncing the German ch or the uvular or tongue trilled r or the dorsal d, t as the German speaker has in imitating the English th or the cerebral r or the cerebral d, t, etc. Such difficulties, however, play a role of course only in the transfer of a language from one people to another (accordingly by speech borrowing in the broadest sense of the word).

732. The word sound law, as one sees, is not to be conceived in the sense in which one speaks of natural laws. It is not meant to imply that under certain given conditions a certain result must necessarily follow everywhere; but it should merely indicate that, if somewhere under certain conditions a shift in the manner of articulation has occurred, the new manner of articulation must be applied without exception in all instances which are subject to exactly the same conditions.