

## THE CHILD'S SPEECH.

### V. THE MASTERY OF THE TONGUE.

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1. The beginnings of articulate speech lie, as has been pointed out, in certain mental predispositions which appear as the correlate of processes of physical development in the child. It is prepared for in the inherited momentum of neuro-muscular organization, which provides the indispensable mechanism of utterance, and in the imperious craving for exercise which accompanies all such processes of functional maturation. With each organ is given an aptitude for its exercise and an occasion for its use.

Speech is thus as natural to the child as flying to the bird; the function in each case rests upon a specific physical basis which is in preparation long before the activity appears. Speech is the medium in which the child's spirit is to live and move. It envelopes him as the air surrounds the nest. While as yet he knows nothing of its import, this significant medium subtly stimulates and excites him. As the young bird half rises in the nest when the breeze stirs his feathers, and his wings quiver with anticipated flight, so does the child respond to the speech of those about him and thrill with awakening utterance long before its forms have been apprehended. In a dumb, confused way he finds himself from the outset at home in this new world, for satisfaction attends the exercise of any native power.

This group of inner factors is supplemented by a system of stimuli which the world about him affords. The child is prompted to speak by urgent practical motives as well as by the esthetic rewards which successful utterance brings. He craves speech, and at the same time it is demanded of him; he is constitutionally prepared to exercise it, and its practice

is incessantly thrust upon him. Under such conditions progress should be rapid and attainment high. The greatness of the child's accomplishment in the acquisition of speech can, indeed, scarcely be exaggerated, and the swiftness of his advance from infancy often leaves the observer breathless, but the extent of the period which is occupied by the process and the varied and persistent nature of the attack which the child makes upon its difficulties are sometimes greatly underestimated even by those who are more directly interested in his development.

2. Before the end of the first month the infant shows clearly marked interest in sounds at large, and in the course of the second month his study of speech may be said to arise. Early in that period he begins to watch the face of the speaker, moving his own lips the while and shortly making responsive sounds. During the next two or three months this activity undergoes a rapid development, spontaneous variation supplementing direct imitation, so that by the beginning of the fifth month the child has commonly uttered most of the sounds of his mother tongue. During the second three months of this first half year the child's inarticulate cries have become the conscious means by which a number of specific needs are indicated and their satisfaction secured. Early in the second six months the substitution of articulate sounds is already under way, and before the close of the year his speech attains the stage of combined phrases.

It is during this second half year that the habit becomes prominent of stringing together a chain of syllabic sounds in rapid and repeated utterance, often so fluent and melodious as to form a charming imitation of intelligible speech. At the same time it is as true that the child is sparing of speech at this age as that he is prodigal of sounds. Words do not now form, as they characteristically do for the adult, a running commentary upon his own actions or thought. He breaks silence only under the tension of feeling or in active emergencies.

Words have another value which in individual development is prior to their utterance. They are names—means of identifying things—but to know the name does not necessarily mean

doing anything to the object or with it. It is a mark, one of many, by which the thing may be indicated when present or recalled in its absence. Before he thus uses them himself the child shows his familiarity with the names of many objects, and he understands much of the speech he hears before it becomes a habit of his own thus to describe the things with which he deals or to formulate his purposes verbally. While the primacy of understanding in the acquisition of speech is clear, it should also be remembered that the margin of individual variation between the two phases is great, and that fluent utterance may be considerably delayed without becoming indicative of any abnormal condition of speech or backwardness in general mental development.

3. Even when the habit of utterance has been established—that is, when it has become a custom for the child to describe his experience and formulate his purposes in verbal terms—his expression is still beset by many obstacles. He is struggling with a medium of expression which not only presents mechanical difficulties in the complicated process of utterance, but involves an even greater initial problem in the intellectual formulation of experience which conditions it. The child is learning to think as well as to speak, and perplexity in the one case shines out as luminously in his halting utterance as incoordination in the other. The correlation of these two facts should never be forgotten. The child must learn to think in order that he may speak, yet articulate utterance is itself the very means by which in general he clarifies and fixes his own meaning. The nature of the underlying thought is thus fundamental to the character of human utterance. If the child is to speak intelligibly, he must be taught to think clearly. That desideratum once secured, appropriate expression may almost be said to follow as a matter of course, for clear, accurate thought will always find some form of simple and direct speech in which to clothe itself.

Nevertheless the history of articulate expression in individual development is long and complicated. As a specific function it is part of systemic development, and the status of general psycho-physical organization in the individual has a significant bearing upon its course. In itself it is a complex

process involving sensory perception as well as muscular control, so that articulation cannot properly be considered by itself. Further, the use of the imagination, as well as the immediate interpretation of sensory facts, is involved both in the understanding and the use of human speech. Finally, in the course of its establishment articulate speech appears as but one element in a manifold system of materials upon which the child freely draws in making his meaning plain, and these supplementary activities modify and may definitely retard the progress of speech itself.

4. It must be remembered that the acquisition of the capacity for articulate speech is only part of a more general process, the full story of which includes both the development of general voluntary control over movement and the maturation of intelligence in imaginative and reflective activities alike. In every field development is going on along with that in speech, and these advances reflect an essentially unitary progress. Children often write incorrectly the sounds they have difficulty in speaking. Stammering and stuttering are much more frequent among boys than girls, and a similar predominance of ataxic writing is found in their exercises. The child that stumbles in his speech is clumsy in other ways as well. Stammering is associated with a general tendency to blustering. The precocity of speech in girls is but one phase of a superior neuro-muscular organization in general.

The development of voluntary motor control in the body at large follows a similar course to that of speech, and reflects the same stages of development in intelligence. Random movements of the hands, for example, are followed first by clutching when objects come within hand-grasp, and the latter by active, though at the outset vague, movements of reaching and exploration which come more and more under the direction of the eyes as associations are formed and attention defines itself. The movements thus made are at first elementary. The body as a whole is rolled toward its object or merely stimulated to pervasive trembling by its presence. Later the hands are stretched to grasp, and the feet, pushing or creeping, help the body toward its goal. The grasping is at first clumsy, but one after another thumb and fingers are sep-

arated from the elementary fist and receive opposed and independent motions. By the eighth month the hands are used separately. One group of fingers is capable of holding to an object, while another, with the thumb, feels for a different one. The use of instruments appears, such as reaching with a spoon, and the child begins in a variety of ways to imitate his mother.

In all these aspects alike the main features of development are reflected. The elements of movement are being mastered through repetition and combined in groups and series. The field of sensory complexes is organized and associated with adaptive reactions. Attention is sharpened and memory enriched, providing a basis for the practical use of the imagination, and with the rise of constructive activity comes an increasing variety and freedom in the child's expression. Speech, indeed, may be said to represent the significance of this whole process, for in it the individual sums up his knowledge of the objective world and through it he makes articulate his own ideal and practical ends. In all cases which present special deficiencies in speech, therefore, it is important to study the condition of the child's neuro-muscular organization at large and to stimulate his mental development by general exercises instead of confining attention to speech co-ordination alone.

5. The latter process is in itself one of extreme psychological complexity, and the conditions under which it arises are such as to increase rather than lessen the intrinsic difficulties which it presents. The child, in the first years of speech, is learning new words very rapidly. These are often long, or contain difficult combinations of sounds. As he hears them they are spoken rapidly and in continuous discourse. In his attitude attention to sense rather than to sound is characteristic; perhaps never, under natural conditions, is attention directed to the sound alone. If the child repeats the word, he is likely to do so not in isolation but as part of a context, all of which claims his attention. If reproduced alone, he must still rely upon memory of an experience of very complex character. If he is to reproduce the word, he must recall it as a whole and depend upon this memory for both the specific

sound-form of its constituent parts and for their serial order in the word-whole. In doing so the movements of the vocal organs in forming any given part of the word may be modified by the influence of a movement just made or by that of a movement about to be performed.

What wonder, then, that the child, eager to speak, caring always for his ideas and their expression, not for the form of his speech as such, should fall into confusion in his articulate utterance and thereby introduce many characteristic modifications into his speech. The whole neuro-muscular mechanism upon which speech depends is in unstable equilibrium. It has not yet established fixed habits of functioning, and is subject to manifold irregularities. All forms of mental shock or tension disturb it, such as fear, embarrassment, fatigue, etc., and every intellectual difficulty arrests its orderly course. Thus out of the natural processes of development incoherencies of speech in many forms may arise.

Such temporary disturbances of functional balance, especially if recurrent, tend to set up a nervous habit in which the irregularities of utterance, due to points of increased stress, are exaggerated and fixed. The consequence may be either a persistent type of stammering, a habit of blustering, or even a definite stuttering.

6. The child meets the difficulties of articulation in many ways. Words are transformed in sound or modified in use. Speech is made pliant and expressive through inflection or musical intonation, while varied and abundant gesture supplements the deficiencies of the child's vocabulary. He points to what he wants when the name is lacking; verbs are acted out in pantomime, while other words are spoken; dramatic emphasis corrects the misapplication of terms, and when words altogether fail his meaning is expressed in vivacious pantomime. In all this the child is a natural and admirable polyglot. He has many languages, and draws upon his rich materials of expression with freedom and effectiveness. The very wealth at his command stands in the way of unhampered development in articulate expression.

Advance takes place by gradual transition. The forms of inarticulate expression disappear one by one as the child mas-

ters the elements of speech. Differentiation into successive stages can thus be made only in virtue of the amount of substitution of conventional for natural elements which has taken place at given points in the child's progress. As the range of concepts extends and acquaintance with the system of articulate signs by which they are expressed increases, both the pantomimic accompaniment of speech and the expressive modulation of tones undergo decline. The language of the adult, practically as well as esthetically, must indeed be considered a degraded form of expression in proportion as it has lost the flexibility of childhood. How much the music of speech adds to its intelligibility the adult usually fails to recognize, or he would more seriously strive to preserve this form of excellence which the speaking voice once possessed in such high degree.

7. The difficulties which beset articulation may be classified under many heads. Some sounds are difficult in themselves because their utterance necessitates complex muscle combinations; some are difficult because of their relation to preceding and following sounds in the web of utterance. For the articulation of certain sounds the young child is naturally incapacitated by the imperfection of his vocal organs, while the production of others is being made difficult through restriction of exercise to the limited range of elements which any one tongue comprises. Sometimes utterance is arrested by a permanent defect in co-ordination; at others it suffers temporary derangement from excitement, fatigue, and the like. Each of these difficulties may call for its own individual mode of approach, and methods must be adapted to all such specific differences, but the general character of the child's attack upon his problem may be indicated in terms of a few simple concepts.

In the most general terms every change which the child introduces into his speech may be called a simplification of the form of utterance, but this process appears in a variety of particular modifications. The simplest is omission; the difficult elements are dropped and the child uses only those which he can successfully utter. In some cases words or whole phrases are thus omitted and the sentence form reduced to a substan-

tive, a word of action, or a simple exclamatory term. In others the change affects only the structure of individual words, from which initial or final syllables are dropped, a single impressive sound sometimes doing duty for the whole polysyllable in which it appears.

These omissions, as, **indeed**, all the modifications here mentioned, leave the substance of thought unaffected. The child commonly means the word—the whole word as the adult utters it—when he thus mutilates its form, and he may intend what the whole syntactic form means for us when he uses a “sentence word.” The question is one of difficulty in the motor reaction, not of complexity in the thought it accompanies.

When the sound is attempted instead of ignored, the change introduced may be due to its own phonic character or merely to the context in which it appears. In the first case a simpler sound is substituted for that which presents difficulty. The relation of such pairs of sounds has been exhibited in various physiological alphabets. In the second case one of the sounds in question—not necessarily the simpler of the two—is modified in character because in the succession in which it appears the altered form involves a less complex process of muscular adjustment. For example, it is easier to repeat a sound which has just been uttered, since the vocal organs are already prepared for its reproduction, than it is to pronounce a different one, which of necessity calls for a readjustment of the muscle complexes.

It is this principle which accounts for assimilative changes in human languages as well as for phonic reduplication in the young child's speech. Other modifications than those arising from articulatory difficulties embody the same process of simplification, such as the restriction of utterance to a series of synthetically simple sentences, but these lie beyond the limits of the present paper.

8. In the acquisition of speech all these difficulties must be mastered and the syncopations, assimilations and other mutilations which mark the child's speech eliminated. Ordinarily this rectification takes place unreflectively. The change is a consequence in part of the organic development and organization which is under way, and in part results from the child's



incessant practice of speech in daily life. The influence of the latter factor is not restricted to the period or the occasions when the voice is used as a means of intelligent communication. It begins far back in the first year of life, before the child has anything to say or suspects the meaning of the articulate sounds he hears. The voice is a simple plastic instrument, always ready to hand, which he employs when alone as well as in company in a purely solitary way for his own gratification. In the course of this activity new vocal elements appear, sounds other than those owed directly to the mother's speech. The child's unreflective imitation of the tones of her voice is marked by variations due to the imperfections of his vocal organs, to lack of exact apprehension, to failure of retention and many other causes.

Besides these variations, his original tendency to express himself through the voice in both happy and unhappy experience persists and combines with the reflection of his mother's speech in a new, modified process. These spontaneous expressions, and even the failures in imitation, become a point of origin for the production of new sound-forms. The child finds utterance indefinitely variable, and in his exploration of the field of its possible combinations a new world of delight is opened to him, with which he more and more occupies himself. The voice is the child's earliest plaything; long before he can use his hands in any constructive work or his mind in dramatic play the tongue has become a companion and a minister in his hours of solitude.

This incessant practice of the vocal organs, not aimlessly as in the first days of infancy, nor imitatively as when he echoes his mother's speech, but experimentally and esthetically, puts him, first of all, in possession of a great variety of articulate sounds which are not simply heard, but known through their production. Further, it puts him in possession of the capacity to make the movements necessary to produce the sounds in question, and thus largely extends the system of movements which are the immediate associates of speech. His utterance is thus greatly enriched, for he has the images of these sounds in mind and can recognize them, and he knows the movements involved in their production and can make them.

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9. This unprompted activity of the vocal organs, in the next place, adapts the mechanism for its work in imitating more exactly and extensively the mother's speech forms. It is difficult to estimate in any definite way the importance of the part played by this factor in the development of speech, but the incessant babbling of the child, together with the great variety of combinations to which his activity gives rise, makes it appear that the process is a highly significant element in that stage of his speech development. Organic exercise is the basis of progress in the acquisition of speech, as it is in all forms of skilled movements, and only part of such practice at this stage is got in the actual attempt to reproduce the forms of articulate speech which the child hears.

It is only when especial difficulty exists that technical training in articulation must be resorted to, as when a new tongue is to be mastered by the adult, or the child is hampered by a defective mental or physical organization. In the latter case the method of correction varies with the particular origin and nature of the trouble. If the basis be organic defect, as in hare-lip, cleft palate, and the like, the recourse must be to surgical treatment; it is not a problem that falls within pedagogical method. If the condition be due to imperfect functional development or lack of exercise, stimulation, local massage, and especially systematic exercise of the muscles in respiratory control, vocal scales and production of the elements of speech, should be employed. The earlier all such exercises are begun, the greater their value. Any sound which the child fails to master at the outset is uttered with greater and greater difficulty as time goes by, and unless corrected becomes in the end a chronic defect of speech.

10. The psychological approach to this group of problems must begin with a recognition of the significance of preventive measures. A very great part of the defects which mark human speech is the mere product of unhappy tradition. It is the reproduction and perpetuation of a slovenly social habit of utterance which the child picks up by direct imitation of models whose deficiencies he does not discern and cannot even imagine. To have lived with those who use their own tongue well, because they love good speech and strive for it, is the first

condition of a sound habit and tradition in this respect. When the influence of such direct contact, in reading as well as speech, must be supplemented, the instructor will find at least three aids suggested by the psychological nature of the process involved in articulate speech.

In the first place, the child's attention may be called to the precise character of the sound to be produced as the most general condition of correct representation. Each word is a specific sound-form. To speak it is to reproduce this form with exactness. If the child have not heard the word distinctly, he cannot speak it correctly. If his mental representation of it be distorted, his utterance will reproduce the defect. To correct this initial vice the teacher must pronounce the word slowly, distinctly, precisely, and the child must be brought to listen to the sound, to note its exact character and to fix it in mind. For it is the sound he thus hears, or imagines he hears, which guides him, whether he be aware of it or not, in all his use of the speaking voice.

In the second place, the child's attention may be called to the position and action of the vocal organs in producing the sounds he is trying to master. Each articulate sound is the result of contractions occurring in specific muscle groups combined in definite forms and successions. To alter in any degree the force of these movements, or to vary their order, distorts the form of the resultant sound. Mastery of speech thus implies the ability to make these reactions with complete precision and fluency. If the child can be shown that these movements must be made in just this way if articulation is to be correct, and that if he can only make these movements the right sound will follow, an additional means is given of attacking the problem of defective utterance. There are many devices by which the child may be helped to attain this end, such as watching the teacher while the word is pronounced with special emphasis on the movements involved, observing the position of his own vocal organs by means of a mirror and following visually the motions involved in uttering a given sound, representation by drawings, models, and the like. All such material should be drawn upon in turn according to its value in bringing about the desired result.

In the last place, the child's attention may be called to the character of the sounds he produces when his articulation is defective. It is the form of the resultant word-sound, not attention to the muscular tensions involved in its production, which primarily guides our attempts at vocal imitation. The muscular innervation is continuously modified in one direction or another until the right note is struck or the correct sound-complex attained. In some cases, as in singing, this product is the object of deliberate attention, but in other cases, namely in the use of the speaking voice generally, attention is systematically directed away from this point, since the individual is primarily interested only in communicating his thought. If the sounds he has uttered are fully understood, they have served their purpose, and no incentive remains to examine them critically and modify their character. It is his failure to make his meaning clear, and in a minor degree the amusement or ridicule his mistakes may arouse, which prompts the child to conscious effort in this direction. This element of method presupposes that first mentioned, since a specific defect can be recognized only by comparison with the correct model which the child must carry in his imagination. It is not on that account an insignificant aid in overcoming difficulties of articulation, and its use should be part of the cultivation of speech in the normal child as well as in the defective.

In all such instruction, however, it is practice which finally counts, and effective exercise cannot be got through occasional formal training, but only through habituation in daily conversation to the hearing and use of good speech.

(THE END.)