THE MENTAL IMAGERY OF STUTTERERS: AN EXAMINATION OF CERTAIN CURRENT THEORIES

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SINCE the middle of the eighteenth century authorities in constantly increasing numbers have claimed that stuttering is essentially a mental abnormality. It is rather interesting to note, as one does occasionally, a belated student of this subject rising to announce that he has 'discovered' or has 'conclusively shown' what other students have 'discovered' and 'shown' many years ago. To feel that we have at least got far enough to reach an agreement as to the general character of this affliction is encouraging, for we have passed the stutterer by for centuries with a feeling of ignorant fatalism as hopeless as that which once greeted many other human ailments that now yield to treatment. But when one studies the wild guesses and hasty conclusions as to just what constitutes the essential nature of the stutterer's mental abnormality one feels like warning him against expecting an early day of deliverance.

There are at present two widely divergent theories on this point of the general character of the defect. One, adopting the Freudian hypothesis, holds that stuttering is the result of repressed emotional complexes of a sexual kind that date back to childhood. The writer is at present gathering data regarding one of the fundamental assumptions of this theory and hopes to submit conclusions at a later date. The second prominently mentioned theory, and the one which I beg to notice in the present paper, holds that stuttering is, (as one author actually asserts) or rather, is due to, an abnormality of mental imagery. The essential features of this theory were first stated, as
far as I know, by T. Hoepfner*. Two varieties of the theory have appeared in the American literature. One is the thesis of what Bluemel calls a ‘monograph,’ but which I only know as a chapter in a two volume book.† This thesis is, to quote, (V. I, p. 187) that, “The stammerer’s difficulty is transient auditory amnesia.” He says, however, that the stutterer is of a fixed imagery type, being an “auditomoteur,” but in the act of attempting to speak he loses the auditory imagery, and cannot reproduce mentally the “vowel-color,” but relies wholly on kinaesthetic images.

Another type of this same theory is that which has been proposed by Dr. Swift,‡ although Dr. Swift speaks of his as a “new finding.” His theory is stated as follows (Ibid. p. 235.) “Psychoanalysis reveals stuttering as some vague trouble in the personality. Psychological analysis shows stuttering is (!) an absent or weak visualization at the time of speech. This new concept of stuttering as faulty visualization may be called Visual Central Asthenia. This lack or weakness in visualization accounts for all the numerous phenomena of stuttering in severe, medium, or mild cases.”

The method by which Dr. Swift secured the data on which he bases his conclusions may be described as follows:

He began his preliminary tests by asking his subject to answer a question, and then to repeat a sentence after him. The question and sentence were (1) “Where do you live?” and (2) “The dog ran across the street.” The subject was then requested to report “whether there was any picture in the content of consciousness and how long it lasted; and whether that was detailed, intense or weak.” He summarized the results by saying that of twenty stutterers ten had no visual imagery; one imaged faintly; two visualized clearly but the “picture vanished on speaking;” seven, who had been under treatment, visualized their homes clearly. In repeating the sentence, ten had no visualization at all; one visualized faintly; “four visualized well but the picture

The Mental Imagery of Stutterers vanished on speaking;” five others, of whom four had received treatment, “reported visualization.”

After testing his stutterers by this method he examines normal persons in the same manner, and concludes that “almost without exception” they visualize clearly before speaking. These preliminary tests, he thinks, “warranted the tentative conclusion that stutterers have a loss or diminished power of visualization.”

Thus encouraged he undertook what he calls a “further and more exhaustive investigation,” by which he desired to establish certain points regarding the extent of this weakness in stutterers as compared with normal persons, and also the variations of it with the variations in the severity of stuttering. The language used in stating certain of the objects of this final series of tests is in some cases out of the ordinary, to say the least. For instance, “Is it (i.e. visualization) the same for past, present and future memories?”, also “Is visualization equally at fault in all sensory areas of the cortex?” In attaining the objects of the tests, as thus stated, he employed eight sets of questions or sentences, each set containing three. “This long series of questions,” he says, “with careful introspection tests upon the content of consciousness constituted then my main research in the field of stuttering.”

On nineteen subjects some four hundred tests were made, and from over fourteen hundred answers, he has drawn in the main three conclusions, namely, (1) “When visualization is present stuttering is absent; when visualization is absent stuttering is present;” (2) that the severity of stuttering varies with the clearness of visualization, as shown in the progress of treatment; and (3) finally he says, (though who knows what he means?) that “visualization is slightly more frequent for past and future” than for present memories.

Before examining Dr. Swift’s conclusions it is well to call attention to what seem to me to be very serious flaws in his method. In his preliminary tests, for example, after submitting the question and the sentence to the subject he asks him to state “whether there was any picture in the content of consciousness,” etc. Now, every teacher of
psychology knows that it is often difficult to disabuse the minds of students of the impression that image always means visual image. Now, if in questioning his patients, who, I assume, had no psychological training, he used the term ‘picture,’ as he reports, one may be reasonably sure that the subjects understood him to mean visual images only and answered him accordingly. Untrained subjects are bad enough at best in this matter of introspection, as I know from several years of experience in studying them, but when the experimenter himself actually contributes to the confusion the situation becomes worse. That Dr. Swift has done this can, I believe, be shown in several ways. In the first place in describing his methods he seems in certain instances to use the term ‘visualization’ as synonymous with ‘image’ as ordinarily used in psychology. For instance, as already noted, in stating the objects of the final series of tests he asks “Is visualization equally at fault in all sensory areas of the cortex?” Now, as there can be no visualization in any but the visual areas of the cortex he seems to be using the term here to mean concrete imagery in general. He not only mentions that “visualization is absent in other areas as well,” but he even speaks about “the holding of an emotion of pleasure or pain and of other dominating mental attitudes that are sometimes visualized.” To talk about visualizing an emotion in the sense in which psychologists speak of visualizing is of course the sheerest nonsense. Only an ultra modern artist would attempt such a task. And yet, in spite of this there is good reason to conclude that, when he uses the term ‘visualization,’ a more restricted meaning must be given it. For example, he says (p. 234) “Our data above has shown us that the location of the trouble is visual; that is, it is situated about a centre of sensory registration that deposits data from the eye; this must naturally then be located somewhere in or near the cuneus.” There can be no mistake about the meaning of this language. Hence, one is naturally inclined to ask, which one of these two very different meanings of ‘visualization’ did the stutterer choose when questioned by Dr. Swift?

Other faults of method equally calculated to lead to confusion could be pointed out in the lists of questions pre-
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sumably intended to cover all the general classes of images. For instance, to call attention to one only, the first list he calls ‘speech.’ Now just what he means by ‘speech’ imagery over and above the motor, auditory, and visual imagery, which he includes elsewhere in his list, he does not indicate.

The amount of careful work that has been done by psychologists in the study of imagery types and of the general functions of imagery in mental processes gets not even a passing notice from Dr. Swift. One hesitates to think that an investigator would announce a "new psychological finding" in a well-known psychological journal, as he has done*, without some acquaintance with what has already been accomplished in that line. The only alternative conclusion is that he knows the work in these lines but considers that it does not merit mention much less adoption. It is only fair to psychology to say that it will insist on passing judgment on what is offered to it as a discovery. This is surely no less than the medical fraternity, of which I am sure Dr. Swift is an honored member, would insist upon, indeed, has always insisted upon, in similar cases.

Aside from the question of the technic of the study of mental imagery there is involved in Dr. Swift’s conclusions much that bears upon the general question, quite old in psychology, of the relation of imagery to movement. He seems to have cut with one blow the entire knot of this problem. Indeed, he has done more. The ideo-motor actionists assumed that the image in consciousness tended to inaugurate the movement that was “similar” to it or that it represented. The well known statement of James is this:† “We may then lay it down for certain that every representation of a movement awakens in some degree the actual movement which is its object” (Italics mine). The imaginal representation by the stutterer of a dog running across the street obviously neither “represents” nor is in any way “similar” to the motor processes involved in uttering

the sentence describing this event. Kinaesthetic images have at various times been considered to be the necessary mental antecedent of voluntary action. Such phenomena as the loss of motor control through the destruction of the sensory tracts in tabes dorsalis, as well as the findings in the studies of the acquisition of habit and voluntary control in normal subjects, have led to this conclusion. Recent investigation, however, has called in question the assumption of an inherent, necessary, and permanent connection between image and movement. Passing by the well-known attack by Thorndike* on the theory of ideo-motor actionism, we may take a more conservative statement by Pillsbury who says† "The more the antecedents of action are observed . . . . the more evident it becomes that the directing idea may be any sort of image whatever. In many cases, the imagery is very indefinite, seems to be very largely lacking."

Now, if psychology is finding itself compelled to call in question the existence of a fixed and necessary relation between even kinaesthetic images and the movements that they represent, what is to be said of a theory which assumes the existence of such a relation between visual images of the objects thought of and the movements of the speech organs carried out in speaking, that is, in saying anything whatever, about these objects? Dr. Swift's theory must necessarily assume that there is one path by which the neural processes involved in speech normally travel, and this is via the visual centers, so that when it becomes obstructed, speech is blocked, whereas, when it is open speech is free. He does not make clear whether he considers this path to be due to heredity or to individual experience. The same thing must be said of Bluemel, for although he says‡, "The stammerer is an audito-moteur," which one would naturally understand as meaning a permanent type, in the same connection and elsewhere he declares that the stutterer's imagery disturbances are transient, i.e., they become manifest only in the attempt to speak. There is undoubtedly a closer functional connection between auditory images

†Pillsbury, W. B.: The Essentials of Psychology, pp. 298-299.
and vocal sounds than there is between visual images and vocal sounds. The congenitally deaf, for example, are liable to be dumb; the congenitally blind are not. The congenitally deaf even after being taught to speak, usually show marked peculiarities of speech. Bluemel, strange to say, does not employ this argument in this way, however, but says* that his claim that stuttering is an auditory disturbance is borne out by the fact that “stammering seems to be entirely absent among the congenitally deaf that have been taught to speak!”

If the neural speech path is the result of individual experience, if one has learned to rely upon a certain kind of imaginal cue for the inauguration of speech movements, one might conclude a priori that speech would become affected if these cues were disturbed suddenly. There are cases, however, of both gradual and sudden changes in imagery habits without any resultant disturbances of speech. Galton in his well known study of men of science says of them that “their faculty of seeing pictures (cf. Swift’s terminology) . . . if ever possessed by man of highly generalized and abstract thought, is very apt to be lost.” “Speech movements,” says Hoepfner† “are the first to lose their concrete imaginal character and become abstract.” As speech matures the mental antecedents become more and more general and vague. The attention also tends more and more to shift from the original processes of speech, including the imaginal antecedents, to the meaning of the thought to be expressed. Moreover, not even where such changes have taken place rapidly are speech disturbances found to follow. For example, Charcot speaks of a person who “possessed at one time a great faculty of picturing” to himself the persons and things about which he was thinking. But, as he relates, “all of a sudden this internal vision absolutely disappeared,” so that he could no longer image the faces even of his wife and children. I do not know of any evidence that this person became a stutterer, which, if Dr. Swift’s theory be correct, should have been the result.

Reverting to Dr. Swift’s main thesis, we note that it is

*Ibid. p. 234.
†Loc. cit. p. 268.
stated in the following terms: “When visualization is present stuttering is absent; when visualization is absent stuttering is present.” Thus stated there is not only a seeming conformity to Mill’s logical canon of Agreement and Difference, but, by asserting further that stuttering varies pari passu with visualization, he adds a conformity to the canon of Concomitant Variation as a sort of logical lagniappe. But a cardinal principle in the use of these canons is to make sure that we have taken account of all the variant factors involved. This I think it is quite certain Dr. Swift has failed to do. Chief among the variant factors which he has ignored may be mentioned the shift of attention with the resultant changes in attitude and the consequent release of inhibitions. It has long been observed that attention plays an important part in stuttering. The ordinary convulsive tic, for example, may be controlled when attention is voluntarily concentrated upon it, whereas the convulsive movements of stuttering are relieved rather when the attention is distracted*. The writer has attempted to state this as follows:† “Placing corks or wedges between the teeth, shrugging the shoulders, tapping with the feet, pinching with the fingers, whistling or counting before speaking, and numerous similar therapeutic expedients, all of which have been known to be effective in certain cases, seem to owe their efficacy to the fact that they distract the attention of the stutterer from his difficulty, and that, in consequence, they afford him a relief from the morbid inhibitions by which his speech is hindered. Stuttering has been frequently alleviated by the act of writing during speech. Many stutterers can speak perfectly while sewing, embroidering, or playing a piano. Others resort to blowing the nose, to scratching the head or to stroking the mustache before attempting to speak.”

For the stutterer to visualize the objects he is talking about will afford the same kind of distraction from his habitual states of mind in speech as do the expedients just

†Fletcher, John Madison: An Experimental Study of Stuttering. Amer. Jour. Psychol. XXV, 1914, p. 239.
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mentioned, and for this reason alone it may be expected to have the same effects on his speech. When a stutterer hears a sentence which he has been asked to repeat, the thing naturally uppermost in his mind is not the meaning of it or the visual qualities of the objects described in it, but his own chances of uttering it without stuttering. He is as capable as others of appreciating meaning, and, as I have repeatedly found by experiment, of visualizing, but the pressing and painful need of the moment is to avoid stuttering if possible. Many people, I fear, fail to realize that stuttering is to the stutterer a very unpleasant experience. The anticipation of painful or unpleasant experiences is the natural source of dread and fear. That the stutterer is in a state of dread or fear while anticipating the necessity of speaking, I have demonstrated, at least to my own satisfaction, both by introspective and objective evidence. As a sample of the latter kind of evidence I have found* in a certain group of stutterers that the average pulse-rate after being told that they would be asked to speak, but before speaking, was 90.2 with a maximum of 120. To ignore this dread or fear, which is absent in the normal speaker and always present in the stutterer, and to attempt an explanation solely on the basis of the imaginal or ideational processes involved in speech is, to my mind, the fatal error into which both Bluemel and Swift have fallen. They hold that the stutterer stutters because he loses his mental imagery, whereas in fact he loses his mental imagery because of stuttering, or the morbid mental states that have their origin in the painful experiences of stuttering. It is the study of causes not of symptoms that will open the way to progress in the study of this problem as it did in the case of the study of hysteria.

The chief purpose of this contribution is to offer criticisms against certain current theories concerning the essential pathology of stuttering. The theories criticised seem on their face to be so palpably wrong that a lengthy investigation into their merits seems unnecessary. However, by methods in common use in psychology, I have made a study, since the appearance of the theories mentioned, of three cases, and have found in them the following general conditions of imagery to exist:

1. There were no permanent peculiarities of imagery that would in any way distinguish them from normal persons.

2. No pure imagery type was found, each of them employed different kinds of imagery in thought processes with a possible preponderance of visualization.

3. When asked to react by speaking the stutterer has a tendency, in proportion roughly to the severity of his difficulty, to lose not only visual but all other kinds of imagery immediately before speaking. These images tend to give way, for the most part, to kinaesthetic sensations localized especially in the throat and in the organs of articulation. When asked to react by writing, detailed, and in certain instances vivid, imagery was reported.