SOME THEORIES CONCERNING STUTTERING AND STAMMERING*

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NEARLY sixty years have passed since that neglected genius of the medical world, Hughlings Jackson, propounded his theory of language, yet only with recent years, observes the *British Medical Journal*, has its vital importance been dimly understood. Jackson did not shrink from approaching his subject from the psychological side as well as from the standpoint of anatomy. Jackson pointed out that healthy language consists of two separate forms: intellectual, i.e. the power to convey propositions; and emotional—the ability to exhibit states of feeling. Over forty years later, Dr. Pierre Marie startled the medical world by a pronouncement like "an earthquake to our cherished beliefs in cerebral localization." He asserted that the third frontal convolution does not play any special part in the function of language, and that what is called "Sensory Aphasia" could no longer be accepted. At the present writing, Dr. Henry Head, an eminent English authority, who examined many young and healthy war patients, suffering from head wounds and who had developed slighter and more specialized defects of speech than are met with in disease, concludes that had it not been clearly appreciated before, it would have been obvious from observation of this class of patient, that there is no single psychological function or faculty corresponding to speech. Words convey only hints. Gradually men agree to limit the scope of hints conveyed by particular words and phrases until a conventional dialect is arrived at. Words are not only the names of ideas in the mind; they are also the signs of the connection that the mind gives to ideas one with another. Dr. Head does not allow that language can be considered to be a function apart; it may suffer impairment in common with any mental process which demands for its performance exact comprehension, voluntary recall, and perfect expression. In

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this conclusion, we have been aided by the advice of experimental psychology of the kind that has immortalized the name of Wilhelm Wundt. With this theory of language (Intellectual and Emotional, according to Dr. Head) in mind, the subject of Stuttering, both from the theoretical and practical sides, will be approached.

Stuttering has been recognized as a disease for many centuries and many theories have been advanced concerning its etiology. Numerous writers upon the subject, differ in regard to the importance of the causative agents. Fletcher states that a good many recent writers on this subject have called attention to the fact that the diagnosis of this condition has passed through several distinct phases. The first stage considered that the seat of the malady was in the peripheral organs, the tongue being the chief offender. Gradually the seat of the difficulty has been shifted from the peripheral to the central region. The theories as to just what the nature of this mental involvement is, are quite numerous.

However, before taking up the subjest of theories in detail, let us devote a few moments to considering accurate definitions of terms which are necessary for any scientific investigation.

CHART I

German: Stottern
Stammeln

STUTTERING

Difficult Speech

1. Peculiarities of Speech:
   - a Spasmodic contraction of lips, tongue, etc.
   - b Mouth wide open, producing ah, ah, ah, etc.
   - c Unable to speak at all.
   - d Unable to speak certain words.
   - e Unable to speak when suddenly spoken to.
   - f Unable to telephone.
   - g Unable to introduce.
   - h Embarrassment, Shame.
   - i Self consciousness.
   - j Mental haste (cluttering).
2. Causes:
   - a Nervous shock from:
     1 Severe falls.
     2 Ghost stories,
     3 Practical jokes
     4 Surgical operations.
   - b Intense fear.
   - c General overanxiety or psychoneurosis.
   - d Mental contagion (Imitation: parents, friends, deaf mutes).
   - e After whooping cough and other

English: To Stutter
To Lisp

STAMMERING

Mispronunciation

1. Lisping:
   - a Organic.
   - b Neurotic.
   - c Negligent.
2. Negligent Speech:
   - a Colloquialisms.
   - b Illiteracy.
   - c Environment
   - d Carelessness
   - e Inaccurate conceptions.
   - f Defective hearing.
   - g Foreign accent.
3. Organic Defects:
   - a Cleft palate.
   - b Hare lip.
   - c Jaw deformitories.
   - d High palatal arch.
   - e Fallen arch.
   - f Hemiatrophy.
   - g Deviated septem.
   - h Tongue tie.

children's diseases (exhaustion).
f Spastic infantile paralysis (difficulty in using muscles of speech).
g Neuropathic condition.
h Nervous exhaustion.
i Left handedness.
j Speech conflict.

CHART II

To avoid confusion of the terms stuttering and stammering, it has been suggested that technical terms be adopted to designate the two fundamentally different defects.

SCRIPTURE Proposes:
Hypophonia=Subenergetic Phonation.
Hyperphonia= Superenergetic Phonation.

MAUKEN Proposed:
Stuttering=Dyslalia or Difficult Speech.
Stammering=Pseudolalia or Incorrect Speech.

The words, "Stuttering" and "Stammering," have grown up among us because of their acceptance as synomyous terms, and have caused a great deal of confusion because of the attempted explanations of them, no two being alike. We may understand, then, with Fletcher that the translation of the two German words, "Stottern" and "Stammeln" (whose acoustic similarity accounts for both terms being used for variations of the same defect), be translated literally, "to stutter" and "to lisp"? The term "Stammering" will then represent the various defects of *pronunciation,* (the definition for "Stammeln") including these noted in the Diagram under "Stammering".

Fletcher says, in offering a psychological study of stuttering, "In order to avoid confusing stuttering with other forms of speech-defect, it will be necessary to adopt differentiation of the several groups of defects, such as follows:

"1. That class of speech defects resulting from disease or lesions in those portions of the brain that have to do with the function of speech, known as Aphasia.

"2. That class of speech defects designated as 'Stammering' (which we understand to mean mispronunciation). The stammerer, unlike the stutterer, can always speak, but his speech is incorrect.

"3. That class of speech defects designated as 'Stuttering.' This group is distinguished from the foregoing types mainly by its intermittent character. Stuttering may be called a temporarily appearing inability to begin the pronunciation of a word or syllable. The capacity of the stutterer

to speak, seems to be related to certain mental attitudes or states of mind. It is this characteristic that gives the subject its psychological interest."

Upon the subject of "Stuttering" the following theories will suffice to show that there have been many attempts at an explanation, but few of them satisfy. In quoting from some of these already accepted authorities, we note that most authors agree in believing that there is usually a *predisposition* on the part of the patient who stutters, no matter what may be the exciting cause. Dr. Hudson Makuen[1] stated that the most important factor in the etiology of stuttering was heredity, and this notwithstanding the fact that stuttering is an acquired affection, in the sense that speech itself is an acquired faculty.

Gutzmann,[2] besides agreeing that heredity is a very important factor, tells us that he considers stuttering, more or less, a matter of temperament, claiming that most stutterers are excitable and hasty.

Some authors, like Schrank,[3] believe that stuttering is mostly found among the mentally deficient and feeble minded children (we rather think, with Gutzmann, that non-intelligent children are more inclined to lisp than to stutter).

Blume[4] holds that the most immediate cause for stuttering is a disproportion between thinking and speaking, i.e. that the command of language does not keep pace with the development of the thinking powers, or that the process of thinking is too fast for the undeveloped articulatory organs to express.

Liebmann[5] considers nervousness as the real foundation (both hereditary and acquired) for stuttering, and lays special stress on the abuse of alcohol and masturbation.

Schmalz[6] considers a cramped condition of the vocal cords a primary cause for stuttering.

Merkl[7] believes that stuttering is of pure psychic origin, while Rosenthal[8] and Benedikt[9] consider it a "Coördination Neurosis."

Wineken[10] thinks that in all stutterers the will power is bounded by doubt (language doubt).

Coen[11] believes that all stutterers show some nutritive disturbance of the organism or some underdevelopment of the thorax. There is great exception taken to this theory becauses it is well known that many stutterers are Herculeans in stature and health.

Berkhan[12] considers that rickets is the main etiologic factor in

stuttering and says that the changes of the palate and jaw in rickets are similar to those met with in idiots, imbeciles and deaf-mutes.

Freud,[13] Steckel[14] and some other psychologists believe that stuttering is the outward expression of an inward mental conflict.

Hoepfner[15] compares active stuttering with the complicated processes of learning to walk. He claims that a stutterer is delayed by strong cramp-like movements when he endeavors (as in accomplishing the act of walking) to overcome any defects by reflecting upon them.

Froeschel[16] thinks that the nucleus of stuttering lies in the psychic condition of the patient who becomes conscious of the ataxically disturbed speech movements.

Nadoleczny[17] considers the exigencies of the first few school years as the momentous factors of stuttering.

Kraepelin[18] suggests that the psychic disturbances are two-fold, —expectation neurosis and anxiety, the former of which causes the unconscious twitchings (impulses to activity) of the muscles of speech, and the latter increases the stuttering because the fear of being laughed at, reproved or scorned, increases the anxiety.

Scripture[19] states in his "Stuttering and Lisping," that the most frequent cause of stuttering is a nervous shock. Serious falls, ghost stories and practical jokes and terrifying experiences, such as are met with at amusement resorts, are often causes for these mental shocks. Then he says there is a mental contagion by intentional or unintentional imitation; the condition of exhaustion that follows diseases, such as whooping cough, scarlet fever, measles, etc., and a neuropathic disposition.

Bluemel[20] considers that stuttering is due to a transient auditory amnesia.

Browning[21] says that "stammering appears in many cases to be associated at the start with large thymus, if not directly caused thereby." (A possible connection with either the endocrine glands in general or the thymus in particular.)

Swift[22] thinks that stuttering is an absent or weak visualization at the time of speech.

Kenyon[23] says, "In all the multitudinous efforts to solve the etiology of this distressing disorder, no direct effort has been made in this connection, as far as the author knows, to analyze either the physiologic difficulties involved in speech development, or the bear-

ing on the problem of the psychology of the speech developing child, and yet certainly more than 95 per cent of the cases of stuttering developmental processes of the speech development period, involve gain control of the complex speech function. The phycho-physical developmental proceses of the speech development period, involve not only the creation of new thought processes and of language for their expression, but also coincidentally the acquirement of a knowledge of, and a skill in using, the peripheral physical apparatus for the expression of these new thoughts in words."

Now, turning to another medical point of view, we have Dr. Smiley Blanton[24] on "The Medical Significance of the Disorder of Speech," in which he states that "The speech area has not been demonstrated in the brain at birth, and the development of speech is not inevitable. An intact auditory apparatus, the presence of intelligence, and the intact nervous and muscle system are required for its proper development, plus certain emotional and social demands and situations, under the stimulus of which it is organized. In speech disorder, there are early and invaluable symptoms of anomalies of intellectual and emotional growth, as well as organic difficulties of the nervous system." Dr. Blanton's account of his interesting study of the war neurosis cases at Base Hospital No. 117, states that probably 5 per cent of the men had some sort of disturbance of speech, either a complete loss of speech, or a break in rhythm. Among his conclusions, he believes that there is some fundamental weakness in the motor mechanism, but that stuttering results depend not only on the degree of the weakness in the mechanism, but also on the ability of the individual to protect this mechanism from undue strain.

Fletcher's[25] opinions upon the etiology of stuttering are so scientifically sound, they make a fitting climax to all these varying theories just quoted, regarding, as he says, "this old, old malady, whose record dates back at least to the Egyptian hieroglyphics. While medicine has made almost unexampled progress in the understanding and treatment of human diseases, and has added to the list of those that were formerly unknown, there is in the medical world today little more than a confusion of personal opinions and theories in regard to stuttering." Again he says, "When the physician does not feel himself justified in the administration of drugs, he is frequently disposed, if the patient is a child, to say to the par-

ents that he will 'grow out' of the defect. This is, sometimes, a mere evasion. At other times, it is another example of a belief unwarranted by actual facts." Again, Fletcher says, "Two conclusions seem inevitable, first, that stuttering is a mental defect, and second, that the treatment of it should be primarily educational rather than medical. Both the physician and the psychologist of the present day are having more problems thrust on them than they can solve, and neither is anxious to assume new burdens. Yet, in the interest of suffering humanity, it seems to me to be time for the two sciences to come to an understanding regarding the matter of laying aside the subject of scientific and professional jurisprudence; it should be emphasized that this problem is too big to be handled by the side-line practice of the physician."

There are still many more theories which might well be quoted, but these are sufficient to help us reach an agreement as to the general character of the affliction and sum it up as essentially a mental abnormality.

Turning now to the other side of our problem, that of the therapeutic measures to be employed in the correction of speech disorders, we must first study the symptoms and the attempts at correction.

Glance for a moment at such proven facts as, First, the relative *frequency* of stuttering among boys and girls which ranges from 2:1 to 9:1, this preponderance of males being afflicted is due, according to Liebman, to the female's greater dexterity and grace of movement and to the well known fact that girls learn to talk much more easily than boys. Gutzmann believes this fact is due to the different methods of breathing employed by males and females. Second, the three different *ages* at which the defect occurs: (a) at beginning to talk; (b) at second dentition or school age; (c) at puberty—the adolescent period. Third, the three *stages* of stuttering:

1. Pure Habit
   - Imitation.
   - Shock or exhaustion cause inaccurate movements of speech muscles.
   - Embarrassment.
   - Awkwardness in using speech organs.
2. Fright Stage
   - Psychoneurosis.
   - Violent emotions.
   - Intellectual paralysis.
3. Stage of Indifference
   - Habit firmly fixed.
   - Peculiarity of character.
   - Found in older patients.

Fourth, *symptoms:*

1. Cramps or Spasms of Speech Muscles.
   a. Abdominal cramps, always.
   b. Expulsion of breath before breathing.
   c. Continual irregularities of breathing during speech.
2. Laryngeal Cramps.
   a. Muscles become tense and fixed.
   b. Tone becomes monotonous, hard, and often husky.
3. Cramps and Spasma of Muscles and Enunciation.
   a. Lips pressed too tightly together—short or long time; or will open and shut, producing a series (P. B. M.).
   b. Tongue pressed too tightly against hard palate. (T. D. N.)
   c. All sounds may be similarly affected.
4. Contraction of Muscles not Ordinarily Used in Speech. Example: twist head; screw up eyes; contort whole body; grimaces; tongue stuck out between lips; grunting; whimpering.
5. Over-tenseness of Hypertonicity of all Muscles Involved in Speech (Psychic).
6. Starters: er, well, now, why, etc.
   a. Inarticulated but complicated grunt.
   b. Repetition of starters.
7. Excessive Rapidity of Speech.
   a. Mental haste.
   b. Nervous anxiety.
8. Lack of Confidence in Ability to Speak Well.
   Fear; watching too far ahead for words he cannot say; nervous prostration; fear of being ridiculous; mental flurry; hesitation in thought; increased sensitiveness; sadness.

While Gutzmann and Kussmaul may disagree, and Liebman and Steckel may see the cause of stuttering lying in different directions, Fletcher taking exception to Bluemel and Swift, and Swift, at great length refuting Kenyon's statements, how are the speech disorders being cured?

Professor Liebman's methods, as far as it has been possible to adapt them to the English speaking stutterer, are the foundations of a great many of the modern attempts to systematize a method to work upon, but the treatment or reëducation of stutterers is still in a chaotic condition; the work, where it includes drill on particular letter positions being, as Dr. Smiley Blanton says, actually pernicious. By this method treatment is usually aimed at the symptom itself, he further stated, and where relief is given to that, the underlying temperamental disability is left untouched. Right here it might be well to note that the *less* the stutterer thinks of his speech, the better, but the *more* the clutterer thinks of his speech the better. Liebman, Bluemel, Blanton, Scripture, and Browning, feel that this problem, for so many years left in the hands of quacks and charlatans and untrained people, is most distinctly a medical problem, and that neuropsychiatric training is necessary for the diagnosis

and treatment of these patients; while on the other hand, psychology, as Fletcher points out, has its place in the correction of stuttering. As he says, stuttering is to be differentiated from other speech defects (1) on the ground of its intermittent character, (2) by reason of the fact that it is not associated with organic lesions, and (3) by reason of the fact that it is conditioned on certain states of mind in the form of emotions, feelings, attitudes or ideas. These various symptoms of the stutterer may be divided into three general headings: (1) physiologic, (2) psychophysical, and (3) mental. Under the physiologic heading we find in the first place disturbances of breathing. The psychophysical symptoms, according to Fletcher, are those physiologic changes which are associated with, or conditioned on, alterations in mental states, changes which have to do with processes not directly related with the function of speech. The treatment then, we conclude with Fletcher, should be primarily more educational than medical. That is. a reëducation of the emotional attitude toward speech, which will include relaxation, breathing, poise, muscle training and distinct articulation. More particularly the *individual* character should be studied and individual training according to his needs given.

From the number and variety of the causes just enumerated, it is possible to get a rational idea of how complex disturbances of the speech function are; and in good judgment, it is apparent that the source of the difficulty must be found before anything like a cure can be attempted. In all cases of stuttering, as well as in the more severe cases of mal-articulation, the factors of self-consciousness and nervousness are always present, and the sufferer, therefore, must be treated with utmost gentleness, kindness and tact. In children particularly, it is first necessary to quiet them and then to set about eliminating their self-consciousness. They should be given exercises which interest them and make them forget their speech difficulty, until new, correct speech habits are formed that will crowd out the old pernicious ones.

"The human brain is capable of only one emotion at a time, and if it be filled with curiosity or scientific enthusiasm, there is no room for fear," says Conan Doyle. This is most applicable in the stutterer's case; for if he can be induced through distraction to concentrate deeply upon a problem or to forget himself, to force his thoughts from his speech, fear is pushed aside and the speech im-

pulse is free. It is this constant use of mental distractions that will soon start new habits and the matter of smooth speech will assert itself.

Demosthenes, as you know, originated the foundation of a very logical method for the cure of stuttering; first, by putting pebbles in his mouth he started a physical distraction that finally led to a mental distraction; second, he shouted above the noise of the waves to give himself practice in gaining confidence, and, lastly, he ran up hill to strengthen the breathing muscles.

Stammering, as mispronunciation, in its various forms, whether from an organic disturbance, as a functional disturbance or negligence, is a comparatively simple matter and admits of easy handling, if the phonetic relations are thoroughly understood and if patience and time are given to reëducative processes. For this reason, the subject has not been discussed at length in this paper.

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