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AN EVALUATION OF THE DUNLAP METHOD
OF THE TREATMENT OF STUTTERING

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by

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# TABLE OF CONTENTS

I. INTRODUCTION ........................................... Page 1

II. HISTORY: Survey of Theories, Causes and Methods of Therapy ........... 2

III. PROBLEM .................................................. 93

IV. SUBJECTS AND MATERIALS .............................. 95

V. PROCEDURE ............................................... 112

VI. RESULTS .................................................. 119

VII. DISCUSSION ............................................. 134

VIII. SUMMARY ............................................... 138

IX. ACKNOWLEDGMENTS ...................................... 141

X. BIBLIOGRAPHY ........................................... 142
INTRODUCTION

In delving into the field of Speech Correction, one is confronted by a multitude of theories, ranging from one extreme to the other. Adherents of particular ones claim all degrees of success for methods of treatment, based upon their respective theories and many of them have received some degree of distinction.

The problem of this thesis is to evaluate one of these theories, that involved in the Dunlap method of the treatment of stammering. Specifically, this method is based upon the idea of the subject's practicing stammering voluntarily, as nearly as possible in the way he stammers involuntarily, with the assumption that he will overcome his affliction after sufficient practice and treatment. Differences in individuals and in the amount of practicing done greatly influence the success of the treatment.

The aim of this thesis is, therefore, to give a résumé of an experiment in practicing stammering, the results secured therein, and the probable conclusions that can be formulated from an attempted application of this method of treatment.

Before beginning with the problem, however, a review of the different theories of the causes and the methods of treatment of stammering is essential.
The cause of stammering has been a subject of speculation for more than two thousand years. The multiplicity of theories which have arisen from time to time, shows that in the past little was known of the causes of stammering. The subject appears to have been approached from every angle but the right one.

Stammering was discussed by Hippocrates, Aristotle, Plutarch, Cicero, Galen, and other writers of antiquity. According to Hippocrates stammerers with voluble tongues were full of black bile. Galen thought that stammering arose from a de- bility of the muscles caused by diminution of heat. Avicenna believed that humidity caused mollification of the tongue. Guy de Chauliac contended that there was too large a quantity of humors affecting the nerves, muscles, and substances of the tongue. Bacon thought that stammering was caused by refrigeration of the tongue, making its movement difficult. He recom- mended that stammerers drink wine moderately, "because it heateth."

A theory slightly more consistent with modern ideas than any of the previous ones was advanced at an early date by Hieronymus Meurialis who in 1584 expounded his belief that the cause of chronic stammering was to be found in a humidity

1Bluemel, C. S., Stammering and Allied Disorders p.1 ff.
of the brain, which disturbed the normal action of this "central organ," whereas, accidental stammering was caused by sudden emotions and other influences, which injured the whole nervous system.

Shortly after the promulgation of this theory which began to take on the appearance of a superficially scientific approach to the problem, Burton, in 1660, wrote in *The Anatomy of Melancholy* that "standing waters, thick and ill colored, such as come forth of pools and moats...cause foul dis-temperatures in the body and mind of man...and Bodine supposeth the stuttering of some families in Acquitania, about Labden, to proceed from the same cause." This is no more absurd than the theory that stammering is due entirely to a contest between speaking and swallowing. The sponsor of this theory explains in detail—although not altogether with anatomical correctness—that the muscles used in swallowing are identical with those employed in speech. He contends that in swallowing, these muscles draw backward; while in speech, they work in a forward direction. Accordingly, it is the contest set up by the swallowing movements which impedes speech and causes the stammering. The remedy suggested is this: When about to speak, the stammerer should not swallow.

After covering the different theories of the causes of stammering that were formulated in the remote past, we shall

1Boome and Richardson, *The Nature and Treatment of Stammering* p.8 ff.
henceforth place our emphasis upon the investigators from the eighteenth century to the present. During that time, steady progress was made toward ascertaining the true nature of the causes of stammering and there was a gradual development of proper scientific approaches towards its alleviation.

1. Abadie (1) Theory: He believed that stammering was the result of a defect in the sensory mechanism of the individual.

A. Cause: He believed that stammering was caused by an organic lesion in the pyramidal tract.

B. Method of Therapy: He suggested no form of treatment.

2. Appelt, Alfred (2) Theory: He believes that stammering results from the maladjustment of the child to its environment and to society, together with an incoordination of the muscles for speech.

A. Causes: (1) The child is maladjusted to his environment and has an inferiority complex. (2) The youngster fears to face life situations, and the psyche tends to seek protection. (3) Children are sometimes driven too quickly to extend their vocabulary. A conflict arises between words that are familiar to the child and that he prefers to use, and those that are new and unpracticed by him. (4) The child anticipates the advent of a difficult word or letter. (5) A dread of life grows out of a fear of personal failure and inferiority. (6) The disturbance of coordination gives rise to antagonism between the opening and the closing muscles. This idea agrees with the result of the individual psychological theory, that all stammerers express "Yes" and "No" at the same time. The
stammerer wishes contact with his fellows; but at the moment of his wish, he interrupts the process in dread. Should he find himself in a position of inferiority, the protective "No" shows itself much the stronger. This mental conflict must have a bodily symbol which is expressed in disturbed coordination. (7) The child is discouraged.

B. Method of Therapy: (1) The stammerer's social instincts must be aroused in order that he may acquire courage to face society. (2) A case-history of the individual should be secured. (3) The stammerer must be shown how his discouragement arose, and how it has arranged his mode of life. (4) The cause of the individual's stammering must be explained to him. For children, explanations by similes are useful. For example, they might be told that when they meet other people, they behave like a chauffeur who cannot move his car, because every time he starts it, he puts his foot on the brake at the same moment. The stammerer must be taught that his disorder is not necessary for the protection of his feeling of personality in his relations with others. (5) The social feeling of the individual should be developed. He should be taught to think more of others, and from his feelings of plenty and power, to give to others. (6) The individual must be taught to adopt a realistic attitude toward life by systematic encouragement and suitable training. (7) Direct encouragement should be avoided. Indirect methods of encouragement and practice are much more effective. (8) The subject should be made to realize that life is constructive, every man being bound to pay the "reckoning
of life" in his calling, social life, and in his behavior towards the opposite sex. (9) A really friendly relationship should be established between the instructor and the subject so as to win the co-operation of the individual, and to make him more readily disposed to be influenced. (10) The stammerer's false mode of living should be brought to his attention to aid him in making a normal adjustment.

3. Alais d'Serres Theory: He classified stammering into two groups, one group characterized by clonic spasms of the articulatory muscles; the other, by tetanus of the muscles connected with respiration and voice production.

A. Causes: He believed stammering to be caused by some sort of nervous affection.

B. Method of Therapy: (1) He advised the separation of different syllables from each other by equal intervals, together with the exaggerated elongation of their vowels. (2) He recommended movements of the arms, which, in accordance with the severity of the case and the progress of the subject, should accompany the pronunciation, either of each syllable, or of the first syllable of each sentence.

4. Arnott Theory: He considered the glottis the important organ in speech difficulties.

A. Cause: He thought stammering to be nothing more than spasms of the glottis.

B. Methods of Therapy: (1) He believed that stammering

1Appelt, Alfred, Stammering and its Permanent Cure. p.17 ff.
would be cured if the glottis were always kept open. To achieve this, the stammerer should join all the words of a sentence together, without pausing, in such a way that the glottis will be unable to close in the interval between two adjoining words; the connection required, being made by additional vowel sounds. (2) Intonation also played an important part in this system.

5. Bates, Robert (3) Theory: He advanced no particular theory.

A. Cause: He did not specify causes.

B. Method of Therapy: He invented three varieties of instruments applicable to all forms of stammering. All, however, had the same object in view—the maintenance of an uninterrupted current of sonorous breath. (1) One instrument was a narrow, flattened tube of silver, seven-eighths of an inch in length, very light, thin and smooth which was applied to the roof of the mouth in such a manner, that the anterior end was lodged just behind the teeth. It was maintained in this position by a delicate piece of wire or thin slip of India rubber, fastened to one end of the tube, the other end passing between the incisor teeth of the upper jaw. This tube was intended to overcome the difficulty in the pronunciation of the lingual-palatal letters, which are formed by the application of the tongue to the palate. This it accomplished by preserving a continuous current of air, thus preventing spasms and restoring self-confidence to the stammerer. (2) For the explosive consonants, the contrivance consisted of a hollow
bi-convex disc from one end of which projected a silver tube, passing out between the lips, and keeping up the communication between the atmosphere and the oral cavity. (3) For the guttural sounds, Bates contrived a belt made of patent leather and lined with morocco. This belt was concealed in an ordinary stock or cravat, and in this manner, secured around the neck. On the anterior surface of the belt was fitted a metallic plate, through which passed a regulating screw. When the apparatus was adjusted around the neck, the pressure upon the larynx could be increased or diminished, as required.

6. Bell, Alexander M. (4) Theory: He believed that stammering was a mechanical defect.

A. Causes: (1) When the formation of the jaw is such that the teeth cannot be brought evenly in line, sibilant sounds such as "s" and "z" will be defective. (2) When the tongue is too closely tied to the lower jaw, the sounds of "t", "d", "n", "l" and "r" will be wanting in clearness. (3) Cleft palate is a name given to an opening which exists between the mouth and nasal passages. The breath, which must be shut in the mouth for "p", "b", "t", "d", "k", "g", escapes through the nose, and percussive articulation is impossible. Cleft palate also causes all vowels to be nasalized. (4) A slight imperfection in childhood, which has been harshly corrected or mocked, may give rise to stammering. (5) A weakness of the system after illness, which makes the child peculiarly sensitive under ordinary difficulties, may also cause the child to stammer. (6) Imitation also plays an important part in the
causation of stammering.

B. Method of Therapy: (1) One method is conscious control of breathing. Stammerers attempt to "draw" in air while the aperture of the larynx is either closed or greatly narrowed, or even while the mouth-passage is similarly obstructed by positions of the tongue. The first point to be impressed on the stammerer's mind, then, is that the lungs fill themselves; that no effort of suction is required; but that if he merely raises the chest, with the passage to the wind pipe open, he cannot prevent the lungs from filling.

(2) The acts of inspiration and expiration must be alternate and cannot take place simultaneously. Stammerers, however, endeavor to "draw" in air at the same time that they are making muscular efforts to expel the breath. The first condition of free respiration is, then, a silent pause to replenish the lungs. The subject must practice the acts of inspiration and expiration until they are practically, as well as theoretically, faultless. (3) Voice is formed by the breath in its outward passage, setting in vibration, the edges of the aperture of the larynx—the glottis. Stammerers often endeavor to form voice with in-going air, but in general they close the glottis in the effort to vocalize. The stammerer must acquire command of a full, strong, unbroken stream of sound. (4) Having mastered the art of regulating the breath, the stammerer's next step must be to practice the continuous production of voice, until he becomes very familiar with all vocal elements. He should repeat them first, one by one, then
in long sequences, and then in combinations, but always without a break in the continuity of the sound. The following are the elements for this exercise, all of which may be prolonged ad libitum: A, e, i, o, u, ah, aw, oo, oi, ou. l, m, n. ng, v, dh, z, zh, w, y. These elements are not to be considered as vowels and consonants, but simply as voices, each of which has precisely the same sound in the throat; their differences arise solely from the shape of the mouth passage. The names of the letters will be useless for this exercise. The actual sounds of the elements must be pronounced. (5) A great deal of the stammerer's difficulty consists in subduing the upward pressure of the jaw. The only action of the jaw should be downward, but there must be no pressure, even in the right direction. (6) A loose, rising motion of the head is almost a universal feature in stammering. This must be subdued before control over the muscles of speech can be obtained. The head should be held firmly so that even a considerable pressure would not force it back. At the same time, there should be no stiffness to interfere with free motion. 

7. Bell, Charles Theory: He described stammering as a partial chorea.

A. Causes: He regarded it as being due to inadequate capacity to coordinate properly the different actions required in fluent speech, together with a debility of the nerves which

1Appelt, Alfred, Stammering and its Permanent Cure p.18 ff.
control the organs of speech.

B. Method of Therapy: He advised stammerers to begin all sentences with a vowel.

8. Alanton, Smiley (5) Theory: He believes that stammering is the result of fear caused by emotional situations.

A. Causes: (1) Fear and emotional anxiety are the most direct causes of stammering. The emotional situation stimulates the inhibitory function of the more highly developed portion of the brain. This leads to conditioning, which acts as a reinforcement to the original blocking. (2) Some experiences in infancy to which the child was entitled, such as the love of a mother, have had to be forgone. Such a deprivation may act as a barrier to development. The individual becomes "set" by it or returns over and over to this point in a fruitless and infantile search for this love. A distortion of personality occurs. In some cases, the symptoms interfere with the function in some other field; in others, speech bears the brunt, according to the sequence of development. (3) Misplaced, misdirected, and excessive anxiety about something in the unconscious life, which attaches itself to conscious material, is also a precipitating factor. (4) Stuttering is not usually acquired through imitation unless the child identifies himself with some other individual who does stammer. A child who imitates in any cruel spirit, may develop a sense of guilt, in addition to that of the average person which may be sufficient cause for stammering.
B. Method of Therapy: (1) A study of the physical condition and makeup of the patient should be made by a competent neuro-psychiatrist, in order that any obvious physical disabilities may be remedied. (2) A good diet, proper sleeping habits, and the beneficial effects of sun and air will insure adequate and proper living conditions for the stammerer. (3) When causative emotional factors are uncovered, an effort must be made either to help the patient change his environment where it is needed, or to help the patient find more suitable outlets for his emotions. (4) The stammerer should also be given aid in uncovering and developing the good phases of his personality. (5) Physiological relaxation should be given where there seems to be specific need for it. (6) The main avenue of approach to these efforts is through the search for the psychological blocking that has caused the difficulty, which is, in turn, blocking the speech. There are several methods of approach, two of which are psychoanalysis and individual guidance work. Both may be accomplished by the aid of conferences with the physician or psychotherapist while the stammerer is remaining under the usual living conditions. There may also be a brief period of intensive treatment with the living conditions of the stammerer entirely modified.

9. Blumenal, L.S. (7) Theory: He believes that stammering is the result of transient auditory amnesia.

A. Causes: He advances three causes of primary stammering—the active stage of the disorder. (1) Emotional
causes are apt to cause speech difficulties. Speech, like any other conditioned reflex, is vulnerable to the effects of an inhibition, such as a flood, a fire, a bell, or some other unusual happening. This inhibition may be total with resultant mutism, or it may be partial with resultant stammering. In the latter instance, stammering represents a conflict between the physiological processes of the conditioned response, which initiates speech, and inhibition, which impedes it. When the inhibitive tendency is marked, the conditioned reflex may fail to establish itself even tentatively. In such instances, speech becomes inhibited in its formative stages, and the child may be said to stammer as soon as he begins to talk. (2) Toxic conditions and debility in early childhood years lead to physiological inhibition. Stammering consequently occurs during the acute stage of the illness or during convalescence. (3) In a number of cases, the onset of stammering has been observed, following the administration of a stimulating drug, such as a thyroid substance. Blumel has known stammering to be caused by atropine and to be relieved by ephedrine sulphate.

In the secondary stage of stammering, the disorder is marked by effects or sequelae. (1) The emotional distress in the primary stage is carried over to the secondary stage. A physiological "collision" takes place between the conditioned reflex of speech and the inhibition which obstructs it. This emotional conditioning occurs not only to words and letters on which the subject may have difficulty, or on which he may
fear difficulty of pronouncing through conditioning, but also to persons and situations. (2) Inhibition of delay appears to be the direct cause of stammering when the impediment results from voluntary or involuntary imitation of stammering. (3) When a person suffers from transient auditory amnesia, impediment in speech manifests itself because the stammerer cannot clearly hear the difficult word in his mind; that is, he has a momentary amnesia for the sound of the word. The subject might attempt to speak the word by his sense of kinaesthetic (motor) images, but the result would be merely stammered speech, and the word would not be spoken normally until its sound came clearly to the speaker's consciousness. The momentary stoppage in mental speech (the amnesia), however, is due to a recoil of the thought from the mind and not necessarily to a natural weakness of the memory for the sounds. Amnesia occurs because the stammerer is confronted with a break in the continuity of consciousness. (4) Compared with persons of normal speech, stutterers show a weakness in visualization. (5) Fear and self-consciousness both induce inhibition, which is the underlying and direct cause of stammering.

B. **Method of Therapy**: (1) The child should be provided with patterns of composure consisting of quiet voices, unhurried manner, and other forms of tranquillity which it is desired to inculcate. (2) Sedatives may be administered under medical supervision. The purpose of this measure and of tranquillization is to minimize the effect of inhibition. If
these measures fail to relieve the inhibition, then attention should be directed to the conditioned reflex of speech, and an attempt made to establish it. (3) A conditioned reflex of speech should be established. The principal therapeutic expedient is reinforcement of the reflex. Reinforcement is secured by speaking or reading in unison with the child, in order that he may hear the words as he speaks them. The stimulus and the conditioned reflex then occur simultaneously, and the response is consequently facilitated. As the child's speech improves, reinforcement may be omitted. (4) Un-conditioning is the method of merging favorable into unfavorable situations for the purpose of carrying the fluency of the one situation into the other. For this purpose, the telephone may be used in a procedure of un-conditioning. Since most stammerers speak poorly over the telephone but fluently when alone, un-conditioning is attempted by merging the two situations. A system of house phones is employed. Two subjects converse while secluded in separate rooms. When stammering threatens, the subject may isolate himself by momentarily breaking the connection and regaining his fluency, despite the inhibitive influence of the telephone.

A blindfold is also valuable in un-conditioning. The subject is blindfolded and taken to a room where he is assured that he will be alone and will not be overheard. Here, he is required to recite a poem or deliver an informal address. Having been assured of privacy, he will probably speak fluently. This procedure is repeated a number of times, and he is then
told that some one will be present in the room at an undesignated time in the future. From then on, he does not know whether he is reciting in solitude, or speaking to an audience.

10. Blume (9) Theory: He believes that there is disproportion between speaking and thinking. (1) The command of language does not keep pace with the development of the thinking powers, or the process of thinking is too fast for the undeveloped articulatory organs to express.

A. Causes: (2) Blume also contends that a conflict arises between the organs of speech and the process of thinking, when thought itself is slow. This causes rigidity, thus accounting for the twitchings of the muscles of speech—a characteristic of some stammerers. This disparity between the organs of speech and the thinking process is very noticeable. At the age of three or four the child attempts to use his inexperienced speech muscles to express a word, such as "Bleistift". He simply says "stiff-stiff-stiff" but later adds a syllable "Blei". Now, instead of saying "Bleistift," he says "Blei--blei--stift." If such peculiarities are overlooked by the parents, they will lead first to stuttering, and then to stammering.

B. Method of Therapy: (1) During the speech drill breathing exercises should be alternated with exercises of the tongue, requiring the abdomen to be drawn in for as long a period as possible. As a means of facilitating this exercise,

Blume recommended that the shoulders be raised at the beginning of each respiration, lifting one arm and dropping it very gradually until expiration has ceased and the abdomen is completely contracted. (2) After the organs of respiration are regulated, the subject should pronounce the vowels with a deep, chest voice. (3) The subject should then practice correct formation of the consonants. In cases where "t" or "d" caused difficulties, Blume advised the use of a short "e" before each "t" and "d", and the insertion of an "h" behind each "t" and "d".

11. **Bogue, Benjamin N.** (10) **Theory:** He believes that stammering is the result of lack of coordination between the brain and the muscles of speech.

**A. Causes:** (1) This lack of coordination may assume two forms: (a) Under-innervation of the organs of speech, resulting in loose, uncontrollable repetitions of a word, sound, or syllable; or (b) over-innervation of the vocal organ, causing its contraction and closing and leading to inability to pronounce a sound. (2) In ninety-six per cent of the cases Bogue has examined, the cause of the disorder could be traced back to one of five of the following: (a) mimicry or imitation; (b) fright or severe nerve shock; (c) fall or injury of some sort; (d) heredity; (e) disease. (3) In some cases, tickling causes stammering or stuttering, bringing about an intense muscular contraction, especially of diaphragmatic muscles. (4) Chorea (St. Vitus Dance) causes choreatic stuttering or tic speech. (5) Infantile cerebral palsy sometimes brings about a condition known as "spastic speech".
B. **Method of Therapy:** Normal coordination between the brain and the muscles of speech should be established, bringing about a restoration of normal brain control over the speech organs. This method must be three-fold: (a) it must build up the physical being; (b) it must achieve perfect mental equilibrium; (c) it must link up the physical with the mental in perfect harmony. This method is known as the Bogue Unit Method. It is based entirely upon principles which underlie and govern perfect articulation.

12. **Boome, E. J. and Richardson, M. A.** *(11) Theory:* They believe that stammering is the expression of a neuropathic tendency with an hereditary proneness to stammering, or an inborn liability to nervous disturbance due to instability of the nervous system.

A. **Causes:** (1) Among five hundred twenty-two of their cases, they found one hundred seventy-nine with stammering in the family. They incline, however, to the view that the child inherits peculiar neuropathic tendencies which predispose him to stammering, rather than the view that the actual stammering is inherited. (2) Pre-natal influences often have an effect upon the nervous system of the child. Many cases have come to the notice of Boome and Richardson, where neuropathic symptoms appeared to be directly traceable to excessive worry or anxiety on the part of the mother during pregnancy. (3) Careless handling of the child in the early hours of life may yield a habit of fear, which is the cause of incipient nervousness and the forerunner of all kinds of
neuro-muscular instability. (4) Investigations into a number of cases have given indications that rheumatic fever of sub-acute rheumatism may be a factor in the causation of stammering. This, together with chorea, usually facilitates the establishment of incoordination in children. In all cases, the factor underlying the muscular incoordination is the nervous instability, so often symptomatic of rheumatic disorders. (5) Rickets have a much greater effect on a child's mental condition than is generally realized. They lead to a state of general instability of the nervous system, and in extreme cases, such symptoms as head-nodding and convulsions may result. Any condition of debility, resulting in an undernourished brain and nervous system, may lead to an irritable condition of the nerve centers and to a consequent lack of muscular coordination which often affects the speech mechanism. (6) Boome and Richardson think that the connection between left-handedness and stammering has been overstressed. When cases of this nature do occur, they are probably due to lack of confidence, resentment against authority, or the feeling of strain resulting from use of the less expert hand. An attitude of inferiority which appears to be almost inseparable from stammering may develop. (7) Enuresis is a nervous complaint in cases where there is no muscular weakness, mental defect, or parental inadequacy, and one that is often found among stammering children. A shock to the nervous system may result in enuresis, and occasionally, an accident or illness will cause a relapse in an extremely sensitive child.
(8) Imitation was found to be a determining cause of stammering in a considerable number of cases. Imitation, rather than heredity, may always be suspected when the younger brother or sister of a stammerer "follows suit," or when the parent of the child is afflicted with stammering. In a limited number of cases, playing with a stammering child, or sitting next to one in school may provoke stammering. It should be clearly understood, however, that associations with a stammerer cannot have harmful results, except to one who has a pre-disposition to stammer. (9) Defects of hearing and vision are seldom specific causes of stammering, but when they exist, they are nearly always instrumental in increasing or fixing the disorder. (10) In the past, enlarged tonsils and adenoids were thought to be cause of stammering, but this theory is now recognized as erroneous. They have no greater effect upon the actual speech of the stammerer than upon that of the normal speaker. The psychical factor, rather than the physical, makes adenoidal children stammer. Enlarged tonsils and adenoids fill the buccal cavity, causing an obstruction and a sense of discomfort. When they are removed, there is a feeling of uneasiness and a lack of confidence. In the cases traced directly to the removal of tonsils and adenoids, the cause is usually the shock arising from the operation or from anticipatory fear. (11) Shock is frequently the determining cause of stammering. (12) Fear causes the muscles of the organism to become tense and is usually the determining cause of stammering. In many cases, such tension has been traced to
repression of some concrete, or imaginary fear or dread. Prolonged worries, anxieties and fears, however small, take their toll of mental energy and soon will react deleteriously on the mind unless brought to light.

B. Method of Therapy: The family background should be investigated to ascertain as much as possible concerning the family situation and the mental and physical health of the stammerer.

Discussions with the subject should follow. Boome and Richardson use the Word Association Test as a method of approach to such discussions, and to the mental state of the stammerer. It helps bring to light those conflicts and repressions that are causing the anxiety neurosis, and it also gives some indication of the educational level of the subject. The test consists in giving a series of stimulus words, to which the subject is told to respond with another word as rapidly as possible. The various indications whereby it is possible for one experienced in this procedure to determine when one of the stimulus words strikes a buried complex are:

(a) prolonged reaction time, in which there is either a delayed response or no response at all. (b) the naming of some object in the room or emotional reactions, such as laughter, tears, or an increase of stammering all of which are efforts on the part of the subject to evade the true response.

(2) Boome and Richardson consider dreams of stammerers to be helpful as mental indicators, and an inquiry into their content should be made in every case. (3) Suggestion is an
essential factor in the correction of stammering. The subject, having obtained an initial success, must be convinced that he is able to repeat it and thus be led to believe that the cure, in reality, depends on himself. (4) These psychologists believe relaxation to be the basis of all individual and group treatment for stammerers. They proceed by having the subjects lie on rugs and cushions provided for the purpose and take suggestions of relaxation. The subjects are told to feel themselves gradually becoming more and more heavy and sleepy, and as soon as they are musically relaxed, "to think themselves better," with the help of their formula of auto-suggestion.

13. Borden, Richard C. and Busse, Alvin C. (12) Theory: They believe that stammering is the direct result of repression.

A. Causes: (1) Certain desires occur which the subject refuses to gratify. Instead of healthily acknowledging their presence, the subject tries to pretend they are not there and to submerge them. The symptom of stammering may thus be considered a code of language through which wishes, repressed in the subject's sub-conscious mind, find their only means of expression. (2) Anxiety caused by the perverse, incestuous, criminal, and asocial desires which he has submerging in his mind may lead the subject to fear that he will inadvertently reveal the presence of these hidden desires through speech.

B. Method of Therapy: (1) The nature of the buried, mental processes in which the subject's disease symptoms are
rooted should be discovered. (2) The patient should be made aware of these processes through analysis of his dreams, and the resuscitation of infantile memories. (3) A normal, harmless discharge (abreaction of the pent-up emotions attached to these processes should be promoted. (4) These processes should be rendered more assimilable with the main body of the subject's personality through explanation and discussion.

14. Brown, Frederick W. (14) Theory: He believes that stammering is the result of severe emotional stress.

A. Causes: Stammering may be caused by severe emotional stress during periods of child development. One of these periods occurs between the ages of one to five years when the child is beginning to speak; the second opens with the beginning of school life when the child advances towards the goal of individual responsibility of thought and action. With beginning adolescence the child experiences, for the first time, the functioning of his physiological, intellectual, and emotional capacities and forces. (2) Any unsolved mental conflict may become intimately associated with speech.

B. Method of Therapy: (1) The application of the principles of physical and mental hygiene to the treatment of the stutterer, as a personality requiring integration, will enable him to become adequately adjusted to social situations, through speech. (2) There is a necessity for research along the paths of the cause or causes of disintegration, and reliable methods of reintegration.

15. Brunneler, Marguerite (16) Theory: Her theory is not
definitely advanced.

A. **Cause:** No apparent causes were determined.

B. **Method of Therapy:** A study should be made of the mental and emotional conditions of the stammerer's life. Vocal training alone may suffice in some cases; but the combination of mental treatment and vocal training is recommended, with the preference for vocal training in case of a choice between the two.

There are three general phases of the treatment: (a) if necessary, physical conditions such as nourishment, sleeping habits, exercise and sex habits should be improved; (b) vocal reeducation, a course in breathing, tone, inflection, pitch, phrasing, articulation, relaxation, and rhythm, is necessary in order to develop poise, to remove the symptom of spasmodic contraction of the diaphragm, and to overcome the constriction of the vocal cords. The following exercises are adaptable for use: vowel and consonant drills, numbers, making out bills, comparisons, giving directions, reading in unison and alone, conversational games, dialogues, riddles and travel talks.

16. **Bryant, Frank A.** (17) **Theory:** He believes that stammering is inherited.

A. **Cause:** The cause is functional and is purely nervous or mental in origin. The fact that stammering so frequently appears in succeeding generations of the same family indicates that it is inherited. In over one-half of the twenty thousand cases examined by Bryant, the subjects had relatives who, at some period of their lives, had suffered from a form of nervous
disorder. In practically all of these cases, the trouble began with the earliest attempts at speech, showing that it was neither a habit, nor the result of faulty education. In many cases, the stammering had skipped one generation, and the children who stammered then, had many times never seen their grandparents. Also, if a parent stammered, one child would have perfectly normal speech, while another stammered; thus it is clear that association and imitation do not necessarily cause stammering.

B. Method of Therapy: Bryant believes that if treated early, such cases are curable, but he defines no definite treatment.

17. Brynelson, Bryn (18) Theory: He advances the idea of cortical dominance.

A. Cause: He believes that stammering is the result of a deep-seated neurological disturbance of the central nervous system.

B. Method of Therapy: The aim is to set up a center of speech control on one side of the cortex by depriving the sub-cortical levels of any direct hierarchy (control). The stutterer should be taught to imitate wilfully the spasms as he studies them in his own speech. The neurological values of this method of treatment are: (a) it exercises the higher, voluntary levels; (b) it conserves a great deal of nervous energy, which is ordinarily dissipated at the lower levels; and (c) it directs the flow of nervous energy into one center of control as in normal speech.
13. Buckholz, Clarence M. (19) Theory: His theory was not made clear.

A. Cause: No definite cause was advanced.

B. Method of Therapy: The establishment of a basic confidence in utterance should be the prime objective at the beginning of training. (1) An awareness of easy, rhythmic control of breathing, should be established. The sense of control should center at the waistline in the region of the diaphragm, and attention should be directed toward establishing good breath support. By sustaining the tension of the inspiratory muscles, the subject can allow his breath to escape easily and gradually. The stutterer should be taught to establish tone conditions by keeping the image of the proper conditions of the vocal apparatus directly in mind until the actual imitation of the tone. The development of an association of "swinging" into the tone that is about to be produced will be found most helpful. The stutterer should thus utilize all the positive associations of swinging that he can. He should feel that he is about to swing into the production of a speech tone, rather than about to say a word. In order to do this effectively, he will need to center his attention on the vowel sounds of the words, rather than on the consonant sounds. Take the consonant positions very lightly and easily; he should think of gliding through them and attacking the vowel sounds. The active impulse for this tone production should be felt to come from the chest and abdomen, the throat remaining passive, open, and relaxed. If necessary, conscious attention can be
applied to the beginning of exhalation, until the proper co-
ordination takes place spontaneously at the thought of tone production. By conscious direction of attention to certain aspects of the response, the stutterer can build up an awareness of what is correct. The feelings that motivate his actual vocalization will in an indirect way be brought under the control of his will. (3) Tone imitation should be practiced. The mental image of the tone should be characterized by openness, roundness, fullness, smoothness, and resonance. The subject should think of taking the consonants so lightly, especially in practice work, that he feels as though he were whispering into the consonant and then filling out the vowel sound.

The repeating of various consonant combinations attached to the various vowel sounds is a good exercise to help establish these images. Attention should be kept centered on the production of the vowels while lightly prefixing the consonants. The blend between consonant and vowel should be definite in mind and smooth in execution. (4) Buckholz finds the sensing of a deliberate pendulum swing most helpful in developing rhythmic continuity. It presents something tangible to the mind of the student, with which the other more intangible reactions of the speech processes can be associated. Care must be taken not to think of such a coordinating device too mechanically. It is to be only a symbol which suggests the coordinations that need to take place. The subject should strive for a natural and spontaneous feeling of an easy
coordination of all of the phases of speech, based on a fundamental illusion of rhythm.

Associated with the progress of the mind over a curve into the pendulum sweep, is the centering of attention on the simultaneous expansion of breathing in the region of the diaphragm. Without breaking the rhythmic illusion already started, attention should shift to the relaxation and other things suggested in connection with establishing tone conditions, until the subject feels himself swinging with the pendulum through its arc into smooth voice. Attention should then shift to the conditions for tone in order to hold and still further establish them. The individual can maintain rhythmic continuity to the end of the breath group, by thinking of a continued progress of the mind through the pendulum sweep, as an orchestra leader might direct his orchestra. This process serves to carry the mind over the breaks in rhythm which would occur in prose.

It is, of course, impossible in actual speaking to shift the attention successively to the total series of ideas that might be associated in practice. Therefore, Buckholz has found it most effective to limit the actual series of conscious centering of attention to four thought items: (a) relaxed breathing; (b) relaxation of the muscles of the back of the tongue; (c) smooth and open tone production; and (d) a feeling of rhythmic movement of speech.

Some ideas previously associated with the speech process will tend to react sub-consciously, even though only a few paramount factors in the process are consciously directed.
19. Camp, Pauline B. (21) Theory: Her attention was given mostly to therapy.

A. Cause: She defined no causes.

B. Method of Therapy: (1) Vocal reeducation should be given in the form of correct breathing. If the diaphragm and other muscles concerned in breathing can be made to act correctly and easily until this action becomes habituated, a strong resistance to emotional disturbance will be formed. A certain amount of drill in corrective phonetics should also be given. (2) One should try to find the emotional cause, and if possible, remove it. If this cannot be done, an attempt should be made to change the individual's attitude toward the emotional situation. (3) Methods of physical hygiene should be applied. The subject should have proper food and correct sleeping arrangements, in addition to any medical attention that may be necessary.

20. Chegoin, Hervey de' Theory: He set forth no theory.

A. Causes: He thought that he had discovered the fundamental cause of stammering, when he drew conclusions from certain abnormal formations of the tongue. When this member was short, or, owing to certain conditions of the ligament, was hampered in its movements, he considered that such conditions caused defects of speech.

B. Method of Therapy: He recommended a surgical operation cutting through the ligament of the tongue.

1Appelt, Alfred, Stammering and its Permanent Cure. p.15 ff.
21. **Chervin Theory:** No apparent theory could be discovered.
   
   **A. Causes:** No definite cause could be recognized.
   
   **B. Method of Therapy:** He insisted on six weeks of silence together with applied gymnastics or training of the respiratory, vocal, and articulatory organs, which occupied the subject from 7:00 A.M. to 6:00 P.M.

22. **Cöen (22) Theory:** He believes that all stammering and stuttering are the results of a nutritive disturbance of the anatomy of the thorax.

   **A. Cause:** He claims that stammering originates with faulty breathing, caused by lack of nutrition. As the normally innervated muscles of the speech apparatus are able to offer considerable resistance against the feeble pressure of the column of air when articulating the explosives "k", "p", and "t", the bursting of the lock which produces the sound cannot normally take place. In this manner, the speech muscles are irritated and are, therefore, seized with spasmodic contractions. The tongue is forced against the roof of the mouth or the teeth, while the lips are violently pressed together. In this state, the patient makes the greatest effort to overcome that obstacle, but only with the result that the muscles are seized with a tetanic cramp which finds its expression in reflexes of the muscles of the face, head, and the upper and lower extremities.

   **B. Method of Therapy:** For the first four weeks, the

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Stammerer should practice exclusively with respiratory exercises. Later on, both inspiration and expiration can be practiced in a combination of intervals of certain duration. After about five weeks of practice, vocal gymnastics should be added. These should be arranged in such a manner as to stimulate and strengthen the action of the laryngeal muscles, and also to increase the elasticity of the vocal cords and the muscles of the thorax. After a deep inspiration, the single vowels should be formed as long and as loudly as the breath and voice of the subject will allow, making the tone gradually swell to greater force, and then as gradually die away. At approximately the ninth week, the exercise of the so-called speech drill, which consists of exercises in syllables and the reading of poetry and prose, should be practiced.

To attack abnormal innervation, Coen employed electrical treatments, certain medicines (ferrum, quinine and opiates), and suitable hydropathic remedies, such as daily cool demi-baths.

1. **Colombat, Theory**: No specific theory was definitely outlined.

A. **Cause**: He outlined no specific cause.

B. **Method of Therapy**: He instructed the stammerer to speak in single syllables, while at the same time, keeping definite rhythms by moving the thumb and fore finger against each other. Later on, Colombat developed for this purpose, a

specially constructed metronome which he called "Muthonomome du Dr. Colombat de l'Isere". From the first to the fourth weeks of treatment, the subjects were not allowed to carry on a conversation with anyone but their fellow sufferers or Colombat himself, lest the success of the exercise should be annulled by disturbing moments. Exercises began with single words, each series being opened by those beginning with vowels. The next exercise was composed of those with "b", "f", "m", "p", "v", as initial sounds, and subsequently by "d", "j", "g", (before "e", and "i"). "Ch", "m", "l", "w", "x", "s", "t", "z", (before "a", "o", "u"), and "c" (before "a", "o", "u"). The last exercise consisted of verses and sentences in prose, and later on, the relating of short stories in colloquial language.


A. Cause: The stammerer, in the course of his development, has not successively overcome the early nursing phase, but remains fixed at this infantile stage of oral tendency, which inflexibly binds the individual to the sucking and biting period of infantile, oral, erotic gratification. There is an actual reproduction in adult life of the relation of the infant to the nipple, that is, a gratification of the oral, erotic zone in pleasure sucking, reenacted and reanimated in maturity. Under these conditions, stammering becomes something of a compulsive repetition of the very primitive nursing activities. The oral libido is fixed on the symptom of the
speech defect and becomes, therefore, a psycho-physiological manifestation of the oral nursing stage.

B. Method of Therapy: (1) Psychoanalytical treatment should be directed primarily against the resistances, and should penetrate deeply enough so that the subject can revive and reenact the earliest oral experiences. No phonetic training should be given. (2) A specialized modification of analysis, termed "Active Therapy" should be used. This consists of a deprivation of various external forms of oral gratification, or rather, an abstinence from these external factors which tend to prolong the gratification or to enforce it. All forms of smoking and gum chewing should be prohibited, as these desires for mouth gratification tend to reinforce the oral difficulties of the stammerer. (3) All therapeutic efforts should be concentrated on the oral libido and its consequent character traits and not on the neurotic anxiety or fear. (4) At first, during the analysis itself, and later in the periods between the analytical treatments, there should be an increasingly strict prohibition of the abnormal tic-like movements which are so frequently encountered in stammerers when they attempt to speak. Through this active therapy, it becomes possible to give this tension conscious, psychic discharge, in place of a symbolic discharge. Tics stand in very close relationship to the narcissistic neuroses of which the oral neurosis-stammering is one form.

25. Cormack and Beessel Theory: They believed that
1Appelt, Alfred, Stammering and its Permanent Cure. p.15 ff.
stammering was the result of incorrect respiration, or the "misapplication of breath".

A. **Cause:** He set forth no specific cause.

B. **Method of Therapy:** No definite method of treatment was apparently outlined.

26. **Creasy, Hannah M.** (26) **Theory:** She believes that stammering is the result of extreme emotional disturbances in the child.

A. **Causes:** (1) Nervous shock or fright may affect the speech mechanism of the child. Shocks of this nature are deeply impressed and consequent motor disabilities, including stammering, are readily accounted for. (2) During a shock or fright, the functioning of the brain may become momentarily paralyzed, so that all that apparently remains active is the emotion of fear and the complex of stammering. (3) Inheritance of a low nerve stamina may give a neurosis a chance to develop. (4) Defective training of the emotional nature of the child will also produce a neurosis, which is a cause of stammering. Too much coddling harms the child's emotional development. A child whose aches and pains are kissed away becomes neurotic and later longs for sympathy. It is better for him to suffer than to be fussed over. Affection for the child should be limited. (5) Inherited and acquired fears including bashfulness which is a manifestation of fear, may cause speech disorders. (6) Any undue emotional reaction, too suddenly curbed, may become introverted and forced back into the subconscious, where the dammed-up emotion—the repression—may
be left to work according to rules of its own, thus causing a conflict.

B. **Method of Therapy:** Creasy advances no didactic methods of treatment. She does advocate, however; (1) skillful diagnosing, since each individual is a personal equation; and (2) pedagogical methods of treatment, based on a study of neurology and psychology necessary to the work.

27. **Penhardt; Blind Theory:** He believed stammering arose from lack of confidence and self-control.

A. **Cause:** No specific cause was made clear.

B. **Method of Therapy:** He applied psychic measures but added breathing and speaking exercises. He instructed the stammerer to drawl his words with slowly escaping breath. The emphasis is put on the vowel of the first syllable, while articulation of the consonants is carried out as smoothly and as quickly as possible. He required the subject to speak with both rows of teeth as far apart as possible, while a scarcely noticeable "h" was to be prefixed before the opening vowels in case this pronunciation offered any difficulties.

28. **Depuytren; Theory:** He evidently outlined no theory.

A. **Cause:** No specific cause could be clearly recognized.

B. **Method of Therapy:** He insisted on the individual speaking in a singing tone, marking certain intervals by a

slight movement of his foot.

29. **Boehm Theory**: He held that stammering is the result of spasms of the respiratory organs, which either take the form of tetanus, or of a clonic spasm.

   A. **Cause**: He apparently specified no cause.

   B. **Method of Therapy**: A definite method of treatment was not made clear.

30. **Hones**: John M. (27) **Theory**: He set forth no definite theory.

   A. **Causes**: (1) Personality and emotional dis-integration is a major cause of stammering. (2) A lack of development and maintenance of a relatively consistent unilaterality also causes stammering.

   B. **Method of Therapy**: (1) The subtractible causes of the disfunction of the organs of the individual should be eliminated by attention to physical hygiene. (2) There should be proper application of the rules of intelligent living at the same time promoting a self-insight and a good attitude toward life. (3) The subject should be guided toward action, away from thinking.

31. **Dunlap, R. H.** (28) **Theory**: He believes that stuttering is the result of neuro-muscular incoordination.

   A. **Causes**: (1) Cleft palate, a general nervous condition, and a condition of tension dependent on malnutrition, may give rise to this disorder. Dunlap believes that faulty diet

has been an important factor in the stuttering of many small children. This contributes to the formation of a habit which persists into adult life. (2) Brutal and incompetent methods of training children cause this difficulty in speech. (3) Restraining the child from speech unduly, forcing the child to speak when he strongly desires to remain silent, and subjecting the child's mode of speech to criticism, are underlying sources of stuttering. (4) The fear of the child, lest he should reveal something he would rather his elders did not hear, is another contributing cause.

B. Method of Therapy: (1) The subject should practice stammering under the conditions of thought and desire, appropriate to the destruction of the habit. (2) He should be made to understand, that in his daily life, it is important not to avoid stammering, but that he must let his speech proceed naturally. (3) The subject should realize that any effort to avoid stammering, tends to fix the stammering habit. (4) He should be led to understand that stammering when practiced according to instructions is not defective speech and is not deplorable, but that it is a necessary accomplishment. He should be led to engage in it without inhibition, doubts, or qualms.

32. Estabrook, Eudora P. (29) Theory: No specific theory was clearly set forth.

A. Cause: She outlined no definite cause.

B. Method of Therapy: (1) Opportunities should be found for happy activity, both in class and in the child's environment.
The child should be given a feeling of "at-homeness" in all his social contacts. (2) In class, the child should be provided with opportunities for practice in using speech under conditions conducive to relaxation. (3) Conversation, reading, recitation, story and news telling should be used along with poetry. (4) The child should also be given informal posture and relaxation exercises and should be encouraged to seek wholesome self-expression and normal social relationships.

33. Fletcher, John M. (20) Theory: No theory was specified.

A. Causes: (1) Morbid adjustment to social environment includes a morbid social consciousness, hypersensitivity of social attitude and a pathological social pressure to ideas and conventions that are in conflict with one's own conceptions and with the basic drive of one's own being. (2) Language inhibitions, set up in children, may also give rise to stammering.

B. Method of Therapy: (1) There should be a complete reconstruction of the entire daily program of the stammerer. (2) There should be a utilization of the social environment. (3) Principles of occupational therapy should be emphasized; activities should be employed which are remedial. (Speech drills should never be employed) (4) Properly equipped rooms or buildings should be set aside for stutterers. These rooms or buildings should be equipped with the necessary paraphernalia for the successful teaching of all subjects required by the pupils of subjects. (5) Stutterers should practice singing, playing a role, dramatizing, and impersonation. They
should also speak in public.

34. **Poswerty, E. (3) Theory:** She outlined no theory.

   **A. Causes:** (1) Humiliating forms of illness may result in the child's feeling inferior, through lack of popularity with his fellows, or through difficulty with his games or lessons. (2) Conscious or unconscious cruelty by way of unfavorable comparison with other children is as harmful. (3) Primary neurasthenia may arise from the child's being pampered and spoiled.

   **B. Method of Therapy:** (1) A long and gradual series of relaxation and correct breathing exercises should be employed. (These are fundamental.) (2) Vocal drills, word list test resembling the Pressey X-0 Test are designed to locate complexes or other causes for mental hygiene treatment. (3) Word-making plans and games, gossiping exercise, going-shopping exercise, a telephone exercise, speaking round-the-clock exercise, are other therapeutic methods. (4) Seven rules are: (a) always to speak with the chest full; (b) always to speak from the "press"; (c) always to make a good voice in speaking; (d) never to worry about special words or letters; (e) never to be afraid to speak when you want to; (f) never to get excited when you speak; (g) to do the breathing practice every day.

35. **Franck (32) Theory:** He asserted that all stuttering and stammering is due chiefly to anxiety neurosis, produced in psychopathic children in their early years by fright.

   **A. Cause:** No specific cause was made clear.
B. **Method of Therapy:** Franck did not make clear any method of treatment.

36. **Franz, Shepherd J.** (33) **Theory:** No definite theory could be discovered.

A. **Causes:** (1) Faulty habits or incoordinations and emotional causes of those activities need correction for fluent speech. (2) Situations of an extremely emotional nature may give rise to stammering.

B. **Method of Therapy:** (1) Breathing exercises, plus the exercises for formation of the different vowels, sibilants, aspirates, should be given. To these, should be added exercises in the complex movements necessary for the production of coordinated and current speech.

37. **Frith, Gladys E.** (34) **Theory:** She believes that stammering is primarily an emotional disturbance, due in some cases to lefthandedness.

A. **Cause:** No definite cause was set forth.

B. **Method of Therapy:** (1) Physical hygiene includes proper exercise, food, and rest. Any physical abnormality or ailment should be corrected, even though it does not seem to affect the stuttering directly. (2) The principles of child guidance should be put into effect. The child should not be petted or spoiled, and yet not treated harshly. Attention should not be drawn to the child's stammering; nor should any apologies be made for him. Disturbing elements in the home, such as rivalry and jealousy should be eliminated. (3) Vocal exercises are excellent helps for stutterers, but they should
not be employed as a cure or as a hope for a cure. They are designed to improve only volume, pitch, and quality. (4) Dramatic work, in speeches, debating, and playing games are valuable because they give the subject an opportunity to speak, and at the same time, to forget himself. (5) Relaxation should also be employed.

38. Froeschel's, Well (36) Theory: He believes that stammering lies in the psychic condition of the individual who becomes conscious of the ataxically disturbed speech movements.

A. Causes: (1) The cause of stammering may be of a peripheral or a central nature. It may be conditioned by an abnormal functioning of both the impressive and the expressive organs. (2) Defects of will are exemplified in children who, for some reason, do not want to speak correctly. (3) A pronounced motor awkwardness is characteristic of feebleminded children. (4) Functional acoustical disturbance is an inability to grasp kinaesthetic impressions. There may also be a degree of awkwardness in the use of the organs of articulation, together with insufficient functioning of the muscular parts concerned, which may cause a lack of, or faulty formation of, simple sounds. (5) There may also be organic diseases of the motor nervous system which sometimes give rise to bulbar paralysis. (6) Defects in the lips sometimes cause stammering, but this is rather rare.

B. Method of Therapy: (1) In vowel stammering, the stammerer should be shown the correct positions of the mouth
for the sounds he is unable to utter. The sounds gained from this should be practiced in combination with others. (2) Correct consonant positions should be taught the stammerer. (3) Coercive measures such as faradization (electrical shocks) or energetic exhortations are to be undertaken, only when all other attempts have failed. (4) Sometimes it is necessary to utilize artificial sound formation. Because of the forced position of the child's organs of articulation, the method of formation of the respective sounds is more quickly intelligible.

39. Freudip Theory: No theory was made clear.

A. Cause: He believed that stammering could be caused by either a mechanical incongruity in the "motive" organs of the tongue (consisting of an abnormal degree of tension and contraction), or a psychic disposition, the nature of which cannot be accurately defined.

B. Method of Therapy: No form of treatment was outlined.

40. Gifford, Mable F. (37) Theory: She believes that the causes of stammering are psychological, and that the spasmodic manifestation of the speech organs is only an external symptom of a deep-seated mental conflict.

A. Causes: Because of early childhood, severe shocks and emotional conflicts remain as subconscious memories for many years and may continue to disturb the speech function, which in itself is perfect, until such time as corrective

1 Appelt, Alfred, Stammering and its Permanent Cure. p.19 ff.
measures are applied. (2) Pre-school environment plays an important part. (3) Home environment is also significant.

B. Method of Therapy: (1) Physical hygiene is essential.
   (a)
(2) Mental hygiene consists of adjusting the attitude of the child toward his world; (b) adjusting the attitude of the parents, family, teacher, principal and classmates, to the child; and (c) establishing a program of activity, based upon the special abilities or disabilities of the pupil. (3) The stutterer should be reeducated about the "Idea Association" toward speech (a) He should be taught to make his own auto-suggestion constructive. These constructive suggestions should be constantly held in mind before the stammering is upon him. (b) He should experience concretely, the hearing and the feeling of the control of the speech mechanism. These should be carried in the stutterer's mind the idea of general relaxation pouring out of the breathy tone, extremely loose mouth action, and the thought, "It is impossible for me to stammer." The stutterer should then be taught that it is possible to control his thought, and, therefore, to bring into and hold in consciousness, the "fluency innate". This involves self-discipline, and is the only place where will should be used. The holding of the image of fluent speech, results in control of the motor centers, and ultimately in the habitual production of fluency. The sub-conscious conviction must be changed from "I Can't" to "I Can", because I have proved that I Can." (c) After the fluency image has been persistently cultivated, it should be deliberately employed every time the
blockage image intrudes itself and held in the focus of attention until the blockage idea, as well as the stammering, is replaced by the quiet controlled speech. (4) Psychological rehabilitation, in general, should cover, (a) relaxation of mind and body; (b) relaxation of the speech organs; (c) building up concepts of poise, self-expression, and of meeting life situations positively and adequately; (d) the strengthening of the "Fluency Image" by combining the correct idea of flowing speech with the experience (the sound and feeling) of fluency; and (e) the development of a sub-conscious control of the motor centers by retraining the thought control.

41. Greene, James B. (39) Theory: He believes that stammering is due to the incorrect ideation of speech.

A. Causes: (1) Consonants that are formed incorrectly, substituted, or omitted, may constitute the origin of stammering. (2) Vowels that are incorrectly formed, omitted, substituted or added, may cause stammering to develop. (3) Parts of words or whole words may be slurred, disjointed, or otherwise mutilated to such a degree that a person's speech becomes altered to the extent that he seems to be speaking a language of his own. (4) Baby talk—this form of speech is acquired from bad speech habits, through imitation, or from poor interpretation and production. (5) Delayed speech may be due to retarded mental development or to lack of aggressiveness in denoting wants. The origin of this defect is usually due either to too much care and attention to protracted periods of sickness during the age when the child's speech is
developing, or to negativistic tendencies found in atypical children.

B. Method of Therapy: (1) The vowel chart test is a method to ascertain what vowel sounds need to be corrected. (2) The consonant chart test is also a method to ascertain what consonant sounds need to be corrected for the same reason. (3) There should be correct formation, practice and drill work on the consonant and vowel sounds, indicated as defective by both tests. (4) Home influences, mental states, and educational advantages should be adjusted in such a manner as to contribute to the best welfare of the patient. (5) Using a mirror, the stammerer should breathe in through the nose deeply, with the mouth shut without raising the chest. He should then sound "Ah" in a loud tone, while slowly exhaling. (6) Using a mirror, the stammerer should protrude the lips and make the vowel sound "Oo" and others. (8) The stammerer should fix his eye on some object in front of him. Then without allowing his head to move, he should let the lower jaw drop, relaxing it. (9) Using a mirror, the subject should whisper "Ah," noticing at the same time that the palatal arch is widened. Also thinking of the sound "Ah" he should try to widen the palatal arch without vocalizing.

42. Cuitman, Oskar (41) Theory: He specified no particular theory.

A. Causes: (1) Careless speech in childhood sometimes develops into a habit of stammering as the child grows older. (2) Fear is another cause.
B. *Methods of Therapy*: (1) General breathing exercises should be practiced. (2) The stammerer should breathe audibly through the mouth. While exhaling, he should pronounce audibly, "Hah", then "Ah"; next, he should alternate them; and finally he should say them together. Syllables and words as well as combinations of the vowels with consonants can be utilized for practice. (3) When the child has attained the age of six or seven years, he should be given physical exercises.

43. *Aitman, Herman (42)* *Theory*: He believes that stammering is more or less a matter of temperament, asserting that most stammerers are excitable and hasty.

A. *Cause*: He believes that stammering is traceable, not so much to heredity, as to "psychic infection" which takes place when a child hears a relative stammer or stutter. Heredity can be taken into consideration as a primal factor only when the patient has never seen nor heard the disturbing relative. The "psychic depression" of the stammerer is never the primal condition but is always due to constant brooding over the speech defect.

B. *Method of Therapy*: (1) Breath control is one form of treatment. (2) Vocal exercises of the long vowels only should be employed. These exercises consist in putting "H" before the vowels. (3) Tics and accessory movements should be inhibited. (4) Confidence must be restored. (5) Study of the voiced consonants consists of exercises where consonants are pronounced from behind the palate.
44. Palm, Cattoriini, Helius, Morgani Theory: They regarded stammering (which was not yet consciously separated from other defects of speech), as the result of anatomic lesions and malformations of the organs connected with speech.

A. Cause: No apparent cause could be discovered.

B. Method of Therapy: They outlined no method of treatment.

45. Bayle, Jenience (43) Theory: She believes that stammering may be caused by a temporary stimulus to an upper motor neuron. (This might be due to a temporary dilatation of the capillaries of the pre-central cortex.)

A. Cause: No specific cause was recognized.

B. Method of Therapy: By the assumption of the quadrupedal position, an alteration of blood pressure ensues which releases the blood that dilates the capillaries.

46. Helmsen, A. G. (44) Theory: No theory was made clear.

A. Cause: (1) Living in an unfavorable environment may not be conducive to normal speech development. (2) A weakness of the child's health may cause him to develop stammering. (3) The child's contacts in the home may not be too intimate, sympathetic, or constructive. (4) There may be a feeling of social inadequacy in speaking situations, and in most cases, anxiety or fear during speech. (5) There may also be other forms of blocking.

B. Method of Therapy: (1) The stutterer should be aided

in becoming adjusted to his environment by intimate, sympathetic and constructive encouragement. This will enable him to educate his emotions and develop a healthy, vigorous, social attitude. (2) The feeling of social inadequacy must be so directed and controlled that the stutterer will develop confidence in his ability to meet the speech situations of his daily life. Accordingly, the feeling of inferiority will diminish. (3) Hopefulness should be based on a cumulation of successful performances, especially in childhood. This will tend to abolish the fears and anxieties that are attendant on speech situations. (4) Adequate, oral, self-expression should be developed in the stutterer.

47. Itard Theory: He was the first author to treat stammering as a pathological symptom.

A. Cause: He believed stammering to be caused by a spasm, induced by a weakness of the motor organs of the larynx and tongue.

B. Method of Therapy: (1) He prescribed systematic gymnastics of the organs of speech, such as reciting for adults, and lecture poses for children. He required a difficult syllable to be practiced. A fork placed under the tongue and encompassing the root of the tongue on both sides, was the means used to strengthen that organ by compelling it to work in spite of this obstacle. (2) He also recommended placing the stammerers under a foreign governess, unacquainted with their

1Appelt, Alfred, Stammering and Its Permanent Cure. p.16 ff.
language, thus forcing them to learn the foreign language slowly, without indulging in their mother tongue.

48. Johnson, Balford J. (45) Theory: He advanced no definite theory.

A. Causes: (1) The causes of stammering seem to lie in a failure to coordinate the vocal muscles under the stress of emotion. (2) Stammering may arise from emotional upsets resulting from breaking a child of the habit of using his left hand.

B. Method of Therapy: (1) When a child under four years of age stammers, his self-consciousness about speech should be reduced. He should be indirectly guided into a quiet state before talking. (2) A child should be given prompt hearing and not kept in suspense when he has something to say. (3) Talk games, with the child's attention given to the act that the adult speech requires, will afford good models of speech. (4) The child should not be asked to talk when emotionally upset. (5) The training should be given in the use of speech, when attention is not focused upon the child nor upon his manner of speech. (6) Emotional tension in the home should be reduced.

49. Jourdant Theory: He apparently set forth no theory.

A. Cause: No specific cause could be discovered.

B. Method of Therapy: (1) The stammerer should inhale with a pause. After pausing, he should pronounce a word or

several words, and then expel the remaining air.

50. Kenyon, Elmer L. (46) Theory: No theory could be recognized.

A. Cause: No cause could be discovered.

B. Method of Therapy: He bases his treatment of stammering on the ideas of G. Hudson, Makuen and Herman Gutzman. Kenyon uses modern psycho-physiology. (1) Through the employment of models, drawings, and description, the stammerer should be taught first to understand his speech mechanism and its manner of action. He should be taught to conceive it as a machine for talking. (2) Principles of psychological management of the speech mechanism should be gradually developed. Since control of the mechanism varies with every individual sound, each must be taken up in detail for the purpose of understanding and controlling the production of that particular sound. (3) Early in the period of training, there should be an effort made to develop a conscious control of the stammerer's speech. This consciously controlled effort should be gradually developed until speech production has become normally smooth, excellent in quality, and attended with little or no hesitation. (4) In this new conception of speech there should be inculcated ideas of calmness, slowness, and self-reliance. The stammerer should be made to understand that only by such constant and efficient control of his social stability and of his speech mechanism, will his stammering be eliminated. By the application of these exercises, he will be able to rebuild the efficiency of that part of the brain on which smooth,
automatic speech production ordinarily depends.

51. **Klencke Theory:** He believed that stammering is a consequence, or reflex action of manifest, or incipient scrofula (tuberculosis with accompanying enlargement and degeneration of the lymphatic glands, especially of the neck).

   A. **Cause:** He outlined no definite cause.

   B. **Method of Therapy:** He believed in strengthening the mental control over the respiratory organs and developing these organs by systematic exercise. To accomplish this, he had his subjects practice shouting in order to strengthen the vocal cords. He also had them indulge in gymnastics, fencing, swimming, besides having them take cold sponge baths. To strengthen the lips, he insisted upon his stammerers speaking for some time with their teeth closed. During the second week of practice, they were to practice the vowels. After deep inspiration, a short pause was followed by the elongated pronunciation of "Ah" until the store of breath was exhausted. The combined respiratory and vocal exercises came last. Also, in order to accustom the stammerer to speak according to time, Klencke either gave him a baton or else induced him to move his thumb and forefinger towards each other, thus enabling the stammerer to accompany all of his words, syllable by syllable.

52. **Kussmaul, Adolph (48) Theory:** He formulated no definite theory.

   A. **Cause:** He believed that stammering was caused by

congenital weakness of the syllabary coordinating apparatus (medulla). Kussmaul published some case histories which indicated that hemiplegia (paralysis of one side) was the cause of aphasia which was followed by stammering. This seems to substantiate the belief that stammering has an anatomical cause.


53. Kustner and Berson. Theory: No apparent theory was defined.

A. Cause: They traced stammering back to unsoundness of the muscles of the organs of speech.

B. Method of Therapy: No method of treatment could be discovered.

54. Liebmann, Albert (49). Theory: He considers nervousness (both hereditary and acquired) as a real foundation for stammering and lays great stress on the abuse of alcohol and sex.

A. Cause: He does not seem to have specified a particular cause.

B. Method of Therapy: He employed a system of exercises for loosening up the larynx and raising the soft palate.

55. Liljeström, Alice (50). Theory: No definite theory was outlined.

A. Causes: (1) Stuttering may arise from breathing obstructions including adenoids and tonsils. (2) Malnutrition

1 Appelt, Alfred, Stammering and its Permanent Cure. p.15 ff.
during babyhood, may be a contributing cause.

B. Method of Therapy: (1) Physical hygiene should be applied. (2) The stutterer should be taught emotional control. (3) Habits of general self-control should be established. Exercises in speech should be given the stutterer. Later on, special exercises may be given to enable him to develop control over his mind and body. The subject should also be given simple arm and leg movements which should be practiced smoothly, evenly, and accurately. The aim is to develop mental as well as physical poise. Breathing exercises should follow and should also be practiced slowly, smoothly and evenly. (4) Speech training is the next step in the therapy. (a) When the stutterer has mastered the breathing exercises well, note or inflection exercises should be given. The first note consists of putting a high-pitched speaking note in the middle of words. Later on, this note should be used in rhymes and original prose exercises. (b) The second inflection exercise consists in putting a high-pitched speaking note at the end of the first syllable in a line of poetry. The voice should be gradually lowered so that the starting point in pitch is reached at the end of the line of poetry. Exercises in using this note in original paragraphs or stories should follow. (c) The third inflection exercise, consists of putting a high speaking note in the middle of the line of poetry. This note is also used in original paragraphs and stories. (5) When the stutterer is able to use any one of these notes easily, he should make use of it in conversation.
(6) When these notes are mastered, the stutterer should begin visual work. The manner of its development varies with the age and ability of the subject. Usually, the process is begun by making the stutterer memorize poetry, using at first only such poems as lend themselves readily to concrete picturing. (7) Exercises on visualizing abstract ideas should be given later. Opportunities for participation in all forms of speech situations should be gradually introduced.

56. Mackenzie, Morell (51) Theory: He believed that in stammering, the larynx is at fault. In stuttering, the seat of the trouble, is in the "unruly member", either the tongue or the lips.

A. Causes: (1) Stammering may arise from an inability to control the action of the vocal cords sufficiently for phonation. (2) This defect may also be the result of spasms of the diaphragm which renders it impossible for a blast of air to be sent up to the glottis.

B. Method of Therapy: (1) The subject should be taught to acquire some degree of control over his diaphragm and other respiratory muscles, so that the air or motive power shall not be allowed to become dissipated before the vocal apparatus can be made ready for it.

57. Haluen, G. Hudson (52) Theory: There was no theory that could be clearly recognized.

A. Causes: The causes are two-fold, predisposing and exciting. (1) The predisposing cause is inherited and general. Tendencies to stammer may be transmitted from parents who may
not have stammered themselves. Weakness or irritability in the auditory speech center, is often inherited. (2) The exciting or immediate cause may be one or more of many things, including accidental or environmental factors; peripheral obstructions; fright; injury; association; imitation; the diseases of childhood; an environment of rapid, excitable speaking; and a lack of the proper type of speech training in childhood.

B. Method of Therapy: (1) The stammerer should be taught to use only the purely movable parts of his respiratory mechanism in the control of the column of breath. (2) The bony and cartilaginous framework of the thorax, including the shoulders, should be held in an easy but perfect equilibrium. (3) A full breath should never be taken when beginning to speak. (4) Attention should be focused upon phonation rather than upon articulation. (5) The stammerer’s attitude toward speech should be changed by intelligent, persistent exercises, covering a long period of time. (6) Each elementary sound of speech should be consciously directed in its production.

53. Mandell, Sibyl (53) Theory: She believes that stammering arises from a neurosis.

A. Cause: No cause could be discovered.

B. Method of Therapy: (1) The purposive factor in the neurosis must be removed, that is, the fictive goal which conditions the pattern of the life of the stutterer must be changed from an egocentric to a social one. (2) The stutterer should be imbued with courage to carry on along the useful
phases of life.

59. Martin, Frederick (54) Theory: He believes that stammering arises from an incorrect ideation of speech.

A. Causes: (1) Fear may result in a speech disorder. (2) Imitation is sometimes responsible for the ailment. (3) Improper speech training is also an important factor. Children are sometimes forced to use and read words much too difficult for them to articulate, pronounce, or even understand. The result is the formation of a habit of stumbling, hesitancy, then stuttering, which may be confirmed when the child is oversensitive or is made conscious of his habit through improper correction or criticism. Difficult sounds are gradually avoided through fear until generation of athenic emotions upsets the entire vocal mechanism.

B. Method of Therapy: (1) Stress should be laid upon more voice when passing from the initial consonant to the following sound. (2) The stammerer should always open his mouth quickly for the vowel following an initial consonant. (3) Exercises containing letters with which the child has special difficulty should be practiced silently at first, and then with mirrors, before there is actual vocalization. (4) Gradually as the fear of speech is lost, and the stammerer commences subconsciously to give sounds in their proper sequence in words, he may be permitted to increase his speed. (5) There should be daily drill in tongue and vocal gymnastics. Tongue gymnastics develop kinaesthetic imagery and make for better and faster coordination. The stammerer should practice vocal
gymnastics in order to intensify his auditory image of the vowels. The development of a new voice is obtained by a better production of the vowel sounds and assists in dispelling fear and inhibition. The use of a higher or lower pitch also assists psychologically by restoring confidence until the secondary causes are removed. (6) Silent reading and the practice of reading aloud before a mirror should also be utilized. (7) Rest is essential.

60. Marshall, Hall and Lichtinger. Theory: They conceived stammering to be a reflex spasm caused by the predominance of excito-motor spinal action over cerebral influence. Lichtinger discriminated between cerebral and spinal stammering and regarded causation as morbid disorders of either the brain or the spine.

A. Cause: No cause was definitely advanced.

B. Method of Therapy: They outlined no method of treatment.

61. McDowell, Elizabeth A. (56) Theory: No theory was formulated.

A. Cause: No cause was clearly set forth.

B. Method of Therapy: (1) There should be stress laid on the recognition of the habit to be acquired by the person who must acquire it. (2) Exercises and schemes for gaining success in bringing about the desired speech reaction should be applied. One exercise that is successful is speaking.

\[\text{Appelt, Alfred, Stammering and its Permanent Cure. p.17 ff.}\]
isolated syllables in unison with the instructor, who should be employing an easy, well-modulated voice. (4) Opportunities should be provided for repeating the reactions and attaching rewards and satisfactions to each successful effort. (5) The desired reaction should be associated with situations in which it must be used. (6) The effort and treatment should be directed toward increasing the span of the period between relapses into stammering and decreasing the length of the duration of relapses when it has occurred.

62. Merkal (57) Theory: He believed that the entire cause of stammering is of psychic origin.

A. Cause: No cause could be discovered.

B. Method of Therapy: He apparently specified no form of treatment.

63. McAllister, Mildred A. (53) Theory: She outlined no definite theory.

A. Causes: (1) Stammering may arise as the result of an inherited weakness of the cortical speech areas, as for example, in cases where there is an early history of delayed speech or imperfect phonation. (2) An inherited predisposition of an emotional instability, may also give rise to stammering.

B. Method of Therapy: (1) Speech drills of component parts of words, syllables composed of consonants and vowels, should be given for the purpose of establishing a good voice. They will also aid in the development of the habit of making the correct coordinations for all consonants and of the habit of taking time to give each syllable its proper value.
where syllable drills are given, there should be an immediate correlation with speech, and conversation relative to mental hygiene should be carried on in a new and better voice.

(3) Detailed speech drills should include attention to vowel quality in words, articulation of final consonants, and pauses as the case requires.

64. Jones, Leon (59) Theory: He believes that stammering is the result of a nervous derangement of neurosis.

A. Cause: No definite cause could be discovered.

B. Method of Therapy: (1) Suggestion, persuasion, or psychoanalysis is necessary to eradicate the nervous disorder.

(2) Suitable exercises to correct the vagaries of muscular and organic functioning should be employed.

65. Horren, John J. R. (60) Theory: There was no theory set forth.

A. Causes: (1) The inability to adjust some personality difficulties may be an underlying cause of stammering. This maladjustment often shows itself in speech for a time. (2) Fear is another cause. (3) Mismangement in the classroom, by the teacher, the ignoring of the child out of seeming charity or the forcible attempt to cure the defect by open exposure, ridicule, or harsh commands may increase a tendency.

B. Methods of Therapy: (1) There should be a reeducation of the personality. Anything that will increase the self-confidence of the patient that will make him turn from a fear attitude to a fighting attitude, will be of value.

66. Moutier (61) Theory: He believed that stammering was due
to fatigue of some part of the speech tract, as a result of overworking this part in the production of speech.

A. **Cause:** He advanced no particular cause.

B. **Method of Therapy:** No method of treatment was clearly defined.

67. **Müller and Dffenbach Theory:** They believed that stammering was caused by spasms of the glottis in which the spasms imparted themselves to the muscles of the tongue, face and throat, by morbid association.

A. **Cause:** They set forth no cause.

B. **Method of Therapy:** Dffenbach cut slits in the tongue and then sewed the two ends together.

68. **Nadeleczny (62) Theory:** No theory was apparently specified.

A. **Causes:** He believed that stammering was caused by the disproportion between the mental speech image and the mechanical expression of it in an endeavor to overcome the difficulties of language. This ataxia may last much longer in neuropathically disposed child than in others; and when further exciting agents such as fear, anxiety and sudden fright are added, the child becomes a stammerer.

B. **Method of Therapy:** Factors in his treatment were: singing; rhythmic speech; slow, monotonous, monodynamic, monotemperal speech; repetitive speech; utterance of nonsense syllables as they occur, after deep inhalation; and use of a

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full voice rising with the melody; and legato speaking.

69. Canato, Michael (63) Theory: No theory was made clear.

A. Causes: (1) Stammering may arise from a faulty development of speech during the babbling period when the child is learning to imitate. (2) Any organic disease of the organs of speech may also cause stammering.

B. Method of Therapy: (1) Systematic speech exercises should be employed. (2) Psychic treatment to aid in the removal of anxiety should be utilized. (3) The self-confidence of the stammerer should be aroused and developed.

70. Rappard, Helen M. (64) Theory: She believes that stammering arises from a mental source.

A. Cause: No cause was clearly defined.

B. Method of Therapy: Mechanical phonetic drills including the articulation of lists of nonsense words and stanzas of poetry should be employed.

71. Peters, Clarence A. (65) Theory: He advanced no theory.

A. Cause: No cause could be found.

B. Method of Therapy: (1) Breathing exercises should be utilized to correct the faulty breathing of the stammerer. (2) The habit of regular emission of air during speech should be acquired. (3) The stammerer should be taught to regard speech as a muscular process. (4) He should be made to understand that a pleasing and powerful manner of public speaking is accessible to him.

72. Prideaux, E. (66) Theory: There was no theory formulated.

A. Causes: Hysteria is the cause he recognizes.
B. Method of Therapy: (1) Direct verbal suggestion, both in waking and hypnotic stage should be given. (2) Indirect suggestion by insinuation with the help of electricity or different forms of exercise and speech drills is helpful.

73. Rumbicheck, Latitia (67) Theory: She specified no definite theory.

A. Cause: There was no apparent cause formulated.

B. Method of Therapy: (1) Direct verbal suggestion, both in waking and hypnotic stage should be given. (2) Indirect suggestion by insinuation with the help of electricity or different forms of exercise and speech drills is helpful.

74. The method was defined.

A. Causes: (1) Improper speech development of the child usually causes stammering. (2) Imitation plays a prominent part in stammering.

B. Method of Therapy: (1) Breathing exercises should be employed to develop conscious control of breathing while speaking. (2) A method for starting speech by placing a tic such as "Ah" or "Er" before each word should be utilized. (3) Continuity of speech, also known as continuity of voice, ought to be practiced. This exercise is composed of drill on the vowel sounds. (4) The stammerer should be as relaxed as
possible when attempting to speak. (5) He should speak in a monotone, putting the emphasis on the vowel sounds and lightly sounding the consonants. (6) The subject should enunciate every word slowly and clearly.

75. *Rodera, James Frederick* (69) **Theory:** He advanced no theory.

A. **Causes:**
(1) Wrong habits of speech set up in childhood and not corrected, frequently cause stammering. (2) Heredity may cause speech disorders. (3) Imitation may result in this affliction. (4) Slight or serious abnormal conditions of the nose, roof of the mouth, lips, jaws, teeth, tongue, or throat may also give rise to stammering. The quality of the voice or the pronunciation of certain sounds is affected.

B. **Method of Therapy:**
(1) The stammerer should be taught how to relax, mentally and physically. All stammerers need to be given numberless experiences of clear, fluent speech in normal speech situations. (2) Stammerers should be trained in regular habits of bathing, sleeping, eating, playing, and working. They should also be taught to cultivate calmness and happiness, to adjust themselves to life, to acquire emotional control, and to secure correct speech control. (3) The aim should be the reeducation of habits toward independence and confidence in self, slowness of speech, and ease in speech and action.

76. **Kollier** Theory: He believed that stammering is caused by: (1) disparity between the rate at which the brain produces

thoughts, and that at which it transfers them to the different stages of innervation; and (2) an incapacity of the organs of speech to accomplish their task properly.

A. **Cause:** No specific cause could be discovered.

B. **Method of Therapy:** There was no definite method of treatment set forth.

77. **Rosenthal (70) Theory:** He thought that stammering is caused by a congenital weakness of the respiratory and vocal apparatus. This condition arises from some sort of a nervous shock which has affected the centers for respiration and speech in early childhood. Later on, the mere intention to speak causes incoordinate movements.

A. **Cause:** He apparently specified no cause.

B. **Method of Therapy:** No method of therapy was made clear.

78. **Ruff Theory:** He believed that the center for speech has accidentally been exposed to some injurious influence, such as suffusing of blood owing to a sudden expansion of the blood vessels of the brain, or an insufficiency of blood owing to a spasmodic contraction of the same vessels. Such detrimental conditions would make the perfectly natural ability to speak, which exists under ordinary circumstance, impossible at that moment. The first disturbance, therefore, which Ruff regarded as a provoking cause of stammering, arises from a lesion, a shock or some extra-ordinarily intense emotion.

A. **Cause:** There was no cause advanced.

B. **Method of Therapy:** No method of treatment was made

clear.

79. **Rutherford, Bernice E.** (71) **Theory:** There was no theory clearly defined.

A. **Cause:** No specific cause could be recognized.

B. **Method of Therapy:** (1) The first factor in the threefold therapy is the parent. He should take care of the health of the child and should receive instruction in mental hygiene. The parent should be taught what happens in stuttering and what the maturation of the nervous system and the establishment of a dominant brain gradient (or lead) does in its correction. If he is brought to realize that speech is a learned process and that the pattern heard is largely the pattern adopted, he will discover wherein his speech is a help or a hindrance to the child. A mental examination of the child will give the parent an idea as to how much can be done for him and how much to expect of him. (2) The second factor is the teacher. The teacher (of speech) should have at her command all available information on the causes of stuttering, together with the methods of dealing with the disorder. She should study the child with the classroom teacher's help, to be sure to discover the simple or multiple causation. The classroom teacher should be taught the workings of the speech mechanism and should be shown how kindergarten material can aid in the maturation and in the establishment of the dominant gradient. She should know why a stuttering child needs patient sympathy and understanding. (3) The most important factor is the child himself. Through individual and group
talks, the speech teacher should make sure that each child in her care is able to face his difficulty. The problem should not be approached in a serious manner for the child should feel joy in realization that there is something to be accomplished. Pictures of progress charts, stars, and stickers, as marks of accomplishment all have a place in getting the child to understand his difficulty and his place in its correction.

30. **Hauy's Theory:** He believed that defective speech was caused by a certain weakness of the soft palate, uvula, and the root of the tongue, together with the immobility consequent upon such conditions.

A. **Cause:** No cause could be discovered.

B. **Method of Therapy:** There was no method of treatment specified.

31. **Scripture, L. K. (72) Theory:** He apparently outlined no theory.

A. **Causes:** He thought stuttering to be caused by:

(1) nervous shock; (2) mental contagion by intentional or unintentional imitation; (3) surgical operations for cataracts, adenoids and other things; (4) a condition of exhaustion resulting from such ailments as whooping cough, scarlet fever, measles, influenza, intestinal trouble, scrofula and rickets; and (5) the difficulty of using the muscles of speech.

B. **Method of Therapy:** (1) Attention should be given to the stutterer's physical and mental health. (2) Training in

melody and flexibility is beneficial. The stutterer should first be taught to sing a song or a phrase while accompanied on the piano. His voice will rise and fall and he will have no stiffness or cramps. Then he should speak a word on the same notes, first with, and then without musical accompaniment. For training in flexibility, the instructor should pronounce various words in such a way that the laryngeal tone passes over two octaves on the first important vowel. This is called the "Octave Twist". (3) There must be correction of the vocal quality for the stutterer’s voice is usually hoarse and breathy. Because of improper action of the laryngeal muscles, the vocal cords do not come together evenly. The hoarseness is corrected by exercises in which the subject sings and speaks "Ah" with the glottal catch at the beginning and end of the sound. The breath is held back by closing the glottis. The vowel begins suddenly with strong vibration and is ended by snapping shut the glottis. The result is perfect closure. (4) The stutterer’s voice is usually very poor in quality and needs training to develop resonance. The stutterer should practice singing scales, arpeggios, and songs in sharply resonant tones. This resonant tone is then carried over into speech. (5) The stutterer usually has cramps of the breathing muscles, breathes in hurried gasps. Usually it is sufficient to train the stutterer to take a breath before each sentence and not to let any of it out before he speaks. Exercises in reciting the alphabet several times and trying to say as much as possible of a poem in one breath are
useful. (6) To develop slowness, exercises should be given in which the stutterer repeats poems and sentences in time to a metronome beating fifty-four times a minute. Conversation should be carried on in a similar manner. Later, conversation should be carried on just as slowly but without the metronome. (7) Training in proper thinking is given by exercises whereby the stutterer gives the names of designated objects. He should do this first by singing, and then by speaking them, melodiously. The word-association test should also be used. Measuring the "association time" with a stop watch in fifths of a second is an effective stimulus. (8) To correct individual sounds, the stutterer should repeat words with that sound, first with the sound omitted, then with the sound much weakened. (9) Confidence must be developed. The stutterer should first sing a tone ("Ah") with the instructor and the piano and then without the piano. Next, two, three and more tones should be used. A declaration of confidence should be made at each step.

Self-assurance can be still further developed by requiring the stutterer to stand up and deliver speeches, either those that have been memorized, or spontaneous ones on topics that are suggested. Confidence is also increased by increasing the loudness and carrying power of the patient's voice. (10) The first attempt in the readjustment of the individual to his environment should be to establish intimate personal relations in ordinary ways of acquaintanceship. As various incidents occur, discussions of the rules of conduct of the
average man and the condemnation of extremes is helpful. (11) In trying to readjust the sub-conscious, the stutterer should write down, from time to time, any thoughts or criticisms of the instructor that may occur to him. He should be warned not to try to produce the thoughts concerning the instructor, but to note only those that are unpremeditated. These spontaneous revelations of the traits of character affect the stutterer with great force and automatically start a readjustment.

82. Scripture, May K. (73) Theory: No theory was made clear.

A. Causes: She believes stammering to originate in (1) any muscular defect; (2) habitual substitution of one sound for another; (3) difficulty in combining sounds; (4) negligence (sluggish mentality) or cluttering (nervousness and mental haste); and (5) malformation of the speech mechanism.

B. Method of Therapy: (1) Laboratory diagnosis should be made. (2) An individual study of each subject according to sex, age, nationality (heredity) health, temperament, environment, mental debility and social adjustment is very important. (3) The sufferer should be treated with the utmost gentleness, kindness and tact in his reeducation. In order that proper and correct speech may be assured at all times, teachers, students and stutterers should familiarize themselves with the ten Commandments of Speech: (a) Say to yourself, "I have no fear. I know I can speak well." (b) Think before you speak. (c) Always think calmly. (d) Always speak
slowly and carefully. (e) Stand or sit quietly and erect when speaking. (f) Before speaking, inhale quickly, deeply, without straining, with the mouth open. (g) Be careful of the first two words in each sentence. (h) Always lengthen and strengthen the principal vowels. (i) Be especially careful to lengthen the short vowels. (j) Be honest with yourself—don't try to avoid words you think difficult.

33. Schulthess Theory: He believed that stammering was the result of spasms of the glottis. He suggested the terms phonophobia and lalophobia as best suited to describe it.

A. Cause: No definite cause was advanced.

B. Method of Therapy: No method of treatment could be discovered.

34. Seth, George and Guthrie, Douglas (74) Theory: They outlined no theory.

A. Causes: He thought stammering to have its source in: (1) imitation, (2) influences at home and at school, and (3) in lefthandedness in some cases.

B. Method of Therapy: (1) Medical and psychological data including clinical examinations, should be obtained. (2) Exercises should not be given in pronunciation and articulation. Any method which raises the ordinarily automatic process of speech, or any part of the coordinated function to the level of consciousness is definitely harmful; but exercises in speaking should be employed. (a) For rhythmical coordination,

1Appelt, Alfred, Stammering and its Permanent Cure. p.16 ff.
practice should first begin in unison. Then the stammerers can gradually be brought up to a point where, in speech games and simple dramatizations, individual speech of varying levels of difficulty may be required. (3) Relaxation is most important. (4) Emphasis should be placed on building up the outer and inner conditions so that correct speech will ultimately be inevitable. The whole atmosphere should be suggestive of improvement.

25. **Solomon, Meyer M.D.** (75) **Theory**: No definite theory could be recognized.

A. **Causes**: There are three clinical stages of stuttering: (a) the stage of pure habit, (b) the fear or fright stage, (c) the stage of distortion of the personality. (1) Stuttering frequently arises from a condition of nervous and mental hypertension in children, especially of the pre-school period, with similar misuse of the peripheral speech apparatus. There is an undue hurry and rush of the incipient stutterer to say a whole word, sentence, paragraph or story with a single effort of speech or from the very first position, which may be either correct or incorrect. (2) Sometimes there is an impulse to speak before the thoughts or words have come to mind. (3) The nervous mental state may be initiated by one or more cumulative factors, such as a desire to keep pace with the rapid conversation of the others about him; the failure of others to listen to him, or wait for him to speak; the fear of being interrupted; efforts by others to hurry the child in speech; forgetfulness of the words he wishes to say; child
mismangement; fear of others because of mistreatment; fatigue and illness. (4) Social situations requiring speech produce inner emotional excitement with momentary over-anxiety. (5) The child may be obsessed with a conviction of the existence of some speech inadequacy and a feeling of inferiority. (6) Bugaboo sounds, syllables, words, persons, or social situations, requiring speech, originate in the usual case, not in some suppressed wish, but in association or conditioned emotional reflexes which are centered about the memory of the past and the fear of some oncoming difficulty or failure.

B. Method of Therapy: (1) The maintenance of sound, physical health; the development of bodily poise; plenty of rest; and technics of relaxation, should be emphasized. (2) The direct management of the psychological condition should be accomplished. (a) Emphasis should be placed on the cultivation of calmness; the development of a soft, low voice in speaking; the control of impulses in non-speech behavior reactions; and controlled thinking. (b) The stutterer should understand the nature and evolution of his stuttering; the mechanism of speech; the influences of the mind and especially emotion of the body and particularly on the speech machinery; the curability of, and principles of treatment of speech disorders so that knowledge, self-help, and self guidance will be obtained. (3) There should be an inculcation of an evolutionary philosophy, leading to self-confidence and self-assertion. (4) Direct management of the peripheral speech machinery can be accomplished. (a) The primary, preliminary
mental state may be overcome by maintaining general calmness and poise; speaking in a low, soft voice; pausing in speaking; grouping of thought; and taking time to think before speaking. (b) Technics for starting speech properly and for the breaking of the speech bloc in its incipiency through the aid of restarting speech by breathing, visualization, and the like, should be utilized during the course of treatment.

86. Sowers, Luella P. (76) Theory: No theory was clearly set forth.

A. Causes: (1) Nervousness often leads to stammering. (2) The ailment sometimes arises from some form of mental distress which leads to an inhibition of the normal functioning of the speech organs.

87. Stinchfield, Sara M. (77) Theory: There was no theory clearly defined.

A. Causes: (1) Speech difficulty may have its origin in imitation (spasmophemia). (2) Where there is a neuropathic background, there may be a hereditary nature of stuttering and of lefthandedness. (3) Diseases of the central nervous system, severe fright, traumatic shock due to injuries or to a surgical operation, severe illness or childhood diseases, rickets and latent tetany may all be contributing causes of stammering. The laryngospasm accompanying tetany in infancy may easily lead to an establishment of "spasmodic speech" as a permanent feature of the speech habits. (4) Home environments of parental nagging or over-emotionality may have fostered tendencies toward moodiness, marked depression and unhappiness, and caused stammering.
Parental exaggeration of slight misbehavior on the part of the child, severe punishment, or threats of isolation which unduly terrify the child through imagination and horror of the unknown, frequently give rise to this speech ailment.

(9) Stuttering seems to accompany the presence of enlarged glands, such as hypertrophied tonsils and adenoids. Probably an infiltration of toxic substances from them affects the nerve centers in the brain. (10) Such anomalies of the mouth, nose and throat see, as high-arched palate, malformed epiglottis, and short frenum, to be factors which favor the development of improper speech habits. In these cases, it is probably the sensitivity of the subject to this anomaly which leads to undue self-consciousness, rather than the anatomical peculiarity which is responsible for the onset of speech disturbances.

B. Method of Therapy: (1) Suggestion is the first factor in treatment. (2) Measures to reestablish self-confidence must be included. (3) Emphasis should be placed upon the purpose of speech—the ideas and intentions of the speaker—rather than primarily upon elocutionary drills, outward manifestations, phonetics, or the repetition of speech sounds. (4) After the habit of stuttering has become set, the calling of attention to the act and the forcing of the stutterer to reproduce his facial grimaces and concomitant muscle movements voluntarily have been found to be very successful.

33. Etivere, Charles S. (79) Theory: He set forth no theory.

A. Causes: The fears of the hypersensitive child in
social situations may develop into a sense of inferiority and shyness. The resultant hesitation and escape produces a vacillation of the social instrument of expression, which is gestured, written, or oral speech. Accordingly this vacillation may manifest itself orally in stammering.

B. Method of Therapy: (1) There should be a complete medical examination and study of the family history. (2) The daily hygiene of the subject should be supervised. (3) Psychological supervision, in which there should be an attempt to unravel the inferiority complex should be included. Talents, no matter how trivial to the subject must be uncovered and developed to the utmost as a means of expression of the Ego. "I Can't" should be "I Can". Any word on which the subject stammers should receive attention in order to find out why he feels that he has to stumble and to show him that the word bothers him because he has a wrong feeling toward it, not because any more effort is needed to pronounce it than any other. He should whisper the word, then say it first in a soft tone and finally in a louder tone of voice. The love life and the subconscious ought to be explained in as simple terms as possible. (4) The first treatments in drills of language of speech should be given lying down, then sitting, and finally standing. Breath control should be taught; and whispering, soft tone, inflection, normal tone, and loud voice should be practiced. In conscious articulation, poems should be used. For children, Robert L. Stevenson's "Child's Garden of Verses" are good; for older subjects,
poems with good rhythm and non-excit ing subjects should be used. The subjects should read aloud a great deal after they have begun to overcome their difficulty. Words should be spoken slowly and no effort made at speed.

69. Stoddard, Clara M. (80) Theory: She advanced no theory.
   A. Cause: No cause was apparently advanced.
   B. Method of Therapy: She proceeds on the principle that the majority of stammering children improve in reading before they improve in spontaneous speech. She explains this as only one step in the correction of stammering. (1) Standards should be set up: (a) for the reading of single words; (b) for the reading of sentences containing three or four words; and (c) for the arbitrary phrasing of longer sentences, using natural pauses. The first three sets should contain ten lessons each, each lesson being a drill upon one vowel sound. The vowel sounds are to be developed in the following order: a, e, i, o, u, ah, aw, oo, oi, ow. The last set should contain forty-four sentences, each of which should be read silently, visualized, phrased, and read aloud. (2) Each subject is to progress at his own rate of speed. He should select a partner to whom he may read, and who in turn, reads to him. (3) The stammerer should be led to recognize and to execute an easy start in reading or speech. (4) The stammerer should be taught to produce large, round, full vowel sounds using a pleasing voice and keeping the pitch low enough to avoid tension. (5) The stammerer should say what he is going to say correctly, the first time, and not be in a hurry.
(6) He should use inflection which helps him to relax.

(7) Joining the "a", or "an" to the following noun on one impulse of the breath foils the tendency to pause after those articles instead of after the following noun. (8) The stammerer should be taught continuity of voice in reading and speech. (9) He should learn to phrase short, simple sentences, and then proceed to longer sentences. (10) Finally, the subject should be left to himself. He should read the sentence in a whisper in order to: (a) develop muscle memory of the sounds produced; (b) visualize each picture presented in the sentence, in order to phrase properly; (c) assure himself that he has given the sentence its proper meaning; and (d) develop auditory keenness.

90. Ssikorski and Sandow, L. ¹ Theory: They believed that stammering is a psycho-neurosis based on a debility of the nerves involved in the action of speech, while each paroxysm of stammering is induced by psychic stimuli.

A. Cause: No cause could be discovered.

B. Method of Therapy: There was no method of treatment specified.

91. Swift, Walter B. (31) Theory: He believes that stammering is the result of visual central asthenia (faulty visual imagery). The trouble is located in or near the center of sensory reception, somewhere in or near the cuneus, that deposits data from the eye. (His first theory was that all

stammering is caused by syphilis. There was an article about him in the magazine called "School Issues", published by Mar- rich and YORK of Baltimore. It was entitled, "Swift the Hooob."

A. **Causes**: (1) Imitation often results in a faulty speech habit. (2) Imagination which brings about hasty speech finally leads to stammering. People whose mental images are created at a terrific rate feel that words are too slow, that language retards them.

B. **Method of Therapy**: (1) Breathing exercises will aid in the development of breath control. (2) The stammerer should hold the voice on a single musical note or tone during the prolonged expulsion of the breath. (3) In addition to holding this note, he should pronounce a word. (4) Then the stammerer should hold the single note through the pronunciation of a sentence or a stanza, gradually proceeding to longer sentences. This exercise develops the power of concentration preparatory to holding a visual image in mind during utterance. (5) After the stammerer has developed enough concentration to warrant passing on to the exercise of developing mental images, instruction should be given with single words. This should proceed gradually to the use of short sentences, long sentences, verse or prose, short original stories, and long pieces of dogmatic literature, until elaborate visualization processes have been developed to the degree of more or less complete elimination of the stammering habit. Uninter- rupted suggestion should accompany these steps. The object of these exercises is to draw the attention from the words to be
pronounced to the notes held in mind and afterwards, to visual pictures.

92. Terman, Lewis M. (33) Theory: He outlined no theory.

A. Causes: Some sources of stammering: (1) the reflex which includes adenoids, enlarged tonsils, and defective teeth; (2) general weakness caused by low muscular tone, malnutrition, illness, overwork, worry, deprivation of fresh air, and insufficient exercise; psychical causes comprised of shock, imitation, morbid fear, hysteria; (4) heredity; and (5) pedagogical maltreatment. Stammering originating with pedagogical maltreatment may arise from ill-advised phonic drills and other faulty methods employed in the teaching of elementary reading. The child's attention called to the "how" of utterance tends to produce "mouth consciousness", which interferes with the process that should function automatically. Also, the influence of a nagging, sarcastic teacher causes a child to become timid when speaking.

B. Method of Therapy: (1) Correct habits of respiration should be learned. (2) The treatment must have for its purpose a reeducation of the individual's speech habits, a general upbuilding of his physical health, and the improvement of his mental condition. (3) The subject must be freed from the morbid anxieties which have their seat in the subconscious life. (4) He should be taught to take a reasonable attitude toward his defect and toward people. (5) Disagreeable experiences which have been repressed and embedded in the subconscious life should be uncovered and reconciled.
(6) Simple exercises in singing should be employed, together with exercises in repeating easy sentences. As self-confidence grows, these may be replaced by declamation. (7) The subject must not be permitted to fail in unimportant matters even where it can be avoided. (8) The instructor should dwell on success and lead him to forget failures.

83. Thomé's Theory: He believed that the fundamental cause of stammering is an abnormal functioning of the central nervous system induced by the influence of certain emotions which lead to respiratory disturbances. He arranged the psychic conditions which bring about this abnormal action into two groups: (1) embarrassment, uneasiness, and lack of confidence, and (2) excessive rapidity of thought, coupled with an endeavor to produce the thought with corresponding rapidity.

A. Causé: There was no specific cause set forth.

B. Method of Therapy: No definite method of treatment could be discovered.

94. Tompkins, Ernest (54) Theory: No theory was made clear.

A. Cause: by accident or incident, a child is induced to interfere with his normal speech by a conscious effort. The speech resulting from the interference attracts ridicule. When the child makes further efforts to avoid the ridicule and fails, he thoroughly convinces himself that he is unable to speak as others do.

Lappelt, Alfred, Stammering and Its Permanent Cure. p. 20 ff.
B. Method of Therapy: Any successful method of treatment may be employed.

3. Causes: Stammering may result from: (1) brain injuries prior to, at and subsequent to birth, (2) physical and mental diseases, (3) prolonged emotional excitement, (4) exhaustion, (5) emotional shock, (6) fear, (7) excessive timidity, (8) hypersensitivity, (9) feelings of inferiority, (10) self-consciousness, and (11) anxiety.

B. Method of Therapy: The general aim in the treatment of the stammerer should be to establish and maintain in him an adequately dominant speech gradient in the central nervous system. This treatment is accomplished by a combination of factors. (1) The stammerer should be put in excellent physical condition. Freedom and abandon in general bodily movements and vigorous body tone should be cultivated. (2) The stammerer must be taught to face honestly and make the most of his life situation. (3) One-sidedness should be developed in all motor leads. After the side to be selected and made the leading one is determined by a thorough study of the individual, every effort should be made to establish its primacy. Games which will tend to develop strength and skill in the desired lead extremity may be improvised. The subject must be regarded as an individual to whom it is necessary to sell something. (4) Writing and speaking exercises are
beneficial. (a) The first period consists of free-hand drawing on the blackboard. At this time, the subject should become accustomed to holding a pencil in the lead hand and using free, loosely-directed movements. This period should last from two days to a week, depending upon the age and progress of the individual. (b) The second period should require writing the alphabet and numerals and should last about a week. (c) The third period should consist of speaking and copying simultaneously. The subject should begin by writing each word before he speaks and should go as fast as possible. After the first week or two, he need write only the first letter of each word as it is spoken. (d) The fourth period should not begin until the subject has become a facile lead hand writer. In this period he should begin to write the first letter of a word, just as, or before, it is spoken. Later, the subject should relate an incident or tell a story, being careful to write the first letter of every word as it is spoken. (e) In the fifth period, after the individual's speech improves, the number of sounds with which he has difficulty should be reduced. This period should consist of having the subject write the first letter of only these words which cause difficulty. (5) General speech exercises in ordinary and interpretative reading, reciting, and singing, may be helpful. These activities inspire confidence and help to remove the fear of speaking, and operate to establish and sustain a dominant gradient of excitation.

No theory was clearly defined.

A. Causes: Defective speech may arise from: (1) congenital deafness; (2) amentia; (3) brain injury; (4) anatomical or functional anomalies of the organs of speech including paralysis of the tongue and facial muscles, malocclusion of the teeth, malposition of the jaw, obstructing tonsils and adenoids, cleft palate, and faulty or inadequate breathing; and (5) Negativism, a pathological stubbornness in behavior or in the acquisition of language.

B. Method of Therapy: (1) General calisthenics are helpful. (2) Breathing exercises should be practiced. (3) Vocalization exercises with vowels are necessary. (4) Exercises should be given for the peripheral organs of speech. A mirror should be used at the beginning of treatment, but as progress and accuracy is achieved, it should be used less and less. (a) Jaw movements should be practiced by holding the mouth open and opening and closing the jaw by count. (b) With lips in the normal position of relaxation and rest, the lips should be turned in with pressure. (c) The subject should inflate the cheeks then deflate them with explosive force as in sounding the letter "p". (d) For tongue movements the mouth should be opened with the teeth about three-quarters of an inch apart. The tongue should be extended straight forward as far as possible and then returned to its natural position. Other similar movements of the tongue can also be utilized. (5) Articulatory exercises and integrated speech make use of the so-called continuants: e, a, oo, o, vocalized.
Stops: Group 1: T-D-N. Each consonant should be practiced in front of the continuants, as: Te, Ta, Too, To, Ti; the continuants should be practiced first as: eT, aT, oOT, oT, iT.
All of these combinations should be practiced about five times each. Then practice sentences should be built upon T-D-N, and the rest of the groups which are: Group 2: P-B-H; Group 3: F-V; Group 4: S-Z-Th; Group 5: Sh-J-Ch; Group 6: K-G; Group 7: L-R; Group 8: H.

97. Ward, Idas C. (38) Theory: She advanced no theory.

A. Causes: Stammering is due primarily to: (1) a nervous condition, (2) shock, and (3) imitation.

B. Method of Therapy: (1) For breathing exercises, the stammerer should pronounce a vowel while exhaling. Singing or pronouncing a crescendo—diminuendo is also beneficial. Finally breathing in slowly, singing on a middle "C" and then sliding to high "C" should be practiced. (2) When the subject is able to control his breath and his voice sufficiently to sing a long vowel, he should sing "a" or "o" on a tone that suits him best or at as a low a pitch as he can comfortably manage. Without interrupting the steady tone of the vowel he should bring his lips together somewhat loosely as, "a--Ma--Ma--"; "o--Mo--Mo." The subject should concentrate on keeping the vowel tone steady and not pay much attention to the consonant. (3) The same exercise should be practiced with "F". The subject should practice the consonants very gently at first, with very slight interruptions in the voice, and articulating them as lightly as possible. (Example, "a--Fa--Fa.")
(4) If the subject finds himself unable to begin a word with an initial vowel, he should inhale and then pronounce each initial vowel with a "H" in front of it. (Example, "Ha--; Hi--; He--; Hu--.") The amount of respiration should be gradually reduced until the normal initial vowel is reached.

(5) If the subject finds it difficult to pronounce words beginning with semi-vowels "w" and "J" as in "yes," he should practice "u--of" for "was," and "i--es" for "yes," gradually increasing the speed of the glide. (6) As soon as the subject can sing any combination of vowels and consonants, the intoning should be discontinued and an exaggerated drawling speech should be substituted. He should begin to use words in a drawling tone, gradually replacing the drawl by a more normal manner of speech.


A. Causes: She believed stuttering to originate in:
(1) a physical defect (organic), (2) an emotional condition (functional).

B. Method of Therapy: (1) From five to ten breathing exercises should be used and on exhalation the subject should say "all". (2) To achieve relaxation, the stutterer should imagine that he is a tree, swaying in the wind. When in a relaxed state, he should be asked questions. (3) Reading of poetry or nursery rhymes, then prose, and finally conversation are beneficial. (4) Mental and physical hygiene talks should aim at encouraging the subject to develop any talent.
he may have, if he has an inferiority complex.

99. Warren J. Edward (90) Theory: He believed that organic defects or diseases do not cause stammering; rather, it originates in a weakness of the nervous system from irregular action of the nerves. The fear of stammering finally causes a person to stammer. He believed that the habit would become difficult to eradicate even after the mental cause was removed.

A. Cause: No specific cause could be discovered.

B. Method of Therapy: (1) Physical hygiene is necessary.
(2) He advised his subjects when they wished to speak to place themselves in an easy and natural position, to keep their mouths well open, to obtain command of the voice, to avoid false motions of the tongue and lips, to read aloud for two or three hours daily, and to practice before a mirror for the articulation of elementary sounds.

100. Wedberg, Conrad F. (91) Theory: He believes that stuttering arises from emotional conflicts growing out of distressing experiences in childhood.

A. Cause: No cause was advanced.

B. Method of Therapy: (1) The adult stutterer must, by auto-suggestion, interpret the conditions under which the stuttering developed and dismiss the unfavorable attitudes as childish and untenable. Childish fears are uprooted by reviving all of the emotional attitudes which grow out of the unfortunate experiences. (2) He must construct new patterns of emotional living together with a new personality of composure and self-confidence. (3) He must learn to speak without
stuttering by utilizing the "fluent pattern", a means of relaxation and auto-suggestion.

101. **West, Robert** (92) **Theory**: There was no theory clearly defined.

A. **Causes**: He believes the causes of stammering to be:
(1) Heredity; (2) a different metabolic mechanism from that of the normal speaker, resulting in poor mental hygiene; (3) fear; (4) embarrassment; (5) hysteria; (6) hypochondria; and (7) anxiety neurosis.

B. **Method of Therapy**: (1) Relaxation and gymnastic exercises should be given. (2) Everything possible should be done to prevent the child from becoming morbid about his failure of speech. Every therapeutic measure that is undertaken should be so administered that the secondary phase of stuttering will be avoided and psycho-neurosis forestalled.

102. **Williams, M. Claudia** (93) **Theory**: No theory was made clear.

A. **Cause**: She did not make clear any definite cause.

B. **Method of Therapy**: (1) Relaxation is necessary. (2) Breath control exercises are also essential. (3) The stutterer should first memorize one or two lines of a poem and then recite the lines while concentrating on a mental picture. The aim is to build up the subject's self-confidence in each succeeding lesson. (4) Later, the stutterer should practice holding one or more pictures over a learned stanza, and finally, over a whole poem. (5) There should follow the holding of a picture over a fable or a short story told in his
own words.

103. Wilson, Jessie W. (94) Theory: No definite theory could be clearly recognized.

A. Causes: (1) Shock, (2) fright, and (3) mimicry may result in stuttering.

B. Method of Therapy: (1) To eliminate the element of fear, the stutterer should be taught that the speech muscles are voluntary muscles, and that the nerve force which is directed to the speech muscles may be voluntarily controlled. (2) The stutterer should learn that speech is easy, needing little strength, little breath, little energy, and little movement. The instructor can show him the proper movements, by using the correct amount of energy to do just the movement at first. Drill will teach the stutterer to gauge the correct amount of energy needed for each movement, for various words, for sentences, for reading, and for speaking. (3) He should also practice self-control of speech until it becomes a habit.

104. Wyllie, John . (95) Theory: He outlined no theory.

A. Causes: (1) Delayed action of the oral mechanism, (2) imitation, (3) neuropathic inheritance, (4) sudden and violent fright, and (5) inheritance, may give rise to stammering.

B. Method of Therapy: (1) The stammerer should acquire an accurate knowledge of the individual letter sounds which comprises speech through the physiological alphabet. The vowels are: a, e, i, o, u; the voiceless consonants, P, F, Th (as in "then"), S, Sh, T, K, H; and the voiced oral consonants: B, W, V, Th (as in "thine"), D, L, R, G, Y. and the
voiced nasal resonants, m, n, ng. All of these consonants should be dwelt upon lightly. (2) First of all, the instructor should impress upon the subject the simile of the violin player, and show him that it is his bow hand, or rather his larynx, that is at fault, and that he must therefore pay no attention to his mouth, but attend to his voice and speak always in a full and resonant natural tone. (3) The subject should read aloud for at least ten minutes every morning. He should begin with poetry and then as his reading improves, take to prose. If he should possess a musical ear, it would be well for him to further cultivate his voice in song and learn to read music at sight. (3) When there is a tendency on the part of the patient to attempt speech from an empty chest, he should be instructed to fill the chest by inspiration at suitable intervals. (6) In all cases of a nervous condition, everything should be done to raise the nervous tone and improve the general condition of the stammerer.

105. Zynkin and Lenhardt. Theory: They believed the cause of stammering to be a lack of confidence and self-control.

A. Cause: No specific cause could be discovered.


106. Yearsley and Braid. Theory: They believed that certain malformations of the tonsils and of the uvula could cause impediments of speech.

1Appelt, Alfred, Stammering and its Permanent Cure. p. 24 ff.
A. **Cause:** They advanced no definite cause.

B. **Method of Therapy:** They advised cutting the tonsils and uvula.

We now have a more or less general résumé of the different causes and methods of correction of stammering, as they have been formulated and applied down through the centuries. Even in this era of specialization, we still retain some of the fundamental ideas that were created in the thinking of the earlier pioneers in the field. However, they are extremely altered in many instances because more scientific psychological investigations are being conducted in this field and are resulting in the discovery of further knowledge about the phenomenon.

Weaving through and underlying these theories, however, are certain elements, principles, and ideas common to all. They may be summarized under causes, and methods of therapy.

A. **Causes:**

1. Incoordination between the brain and the muscles and organs of speech.
2. Lack of the proper idea- tion for correct speech.
3. Bad habits of speech, arising from external sources.
4. The element of fear being conditioned by repeated failures in attempting to express one's self in the desired manner.
5. Varying degrees of emotional disturbances of the central nervous system.
6. The immediate environment of the individual, as a precipitating factor.
7. General physical weakness.
8. Lack of control over the speech organs.
Any one, or a combination of these elements is usually considered as being sufficient to facilitate the development of stammering. Though there is no apparent agreement in any of the theories that have been promulgated as possible explanations of why and how stammering arises, close analysis will reveal these common elements underlying (and diffusing through) all of them. These common elements, however, are not interpreted in the same manner. The conditions which they give rise to rather than the underlying principles and ideas themselves are advanced as the potential causes of stammering.

Nor have these conditions appeared the same to individuals who have analyzed them under similar or different circumstances. There have come into existence many different theories, all of them attempting to define the causes of stammering.

B. Method of Therapy: (1) Physical hygiene. (2) Mental hygiene. (3) The reestablishment of coordination between the brain and the muscles and organs of speech. (4) The building up of the proper attitude toward speech, society, and the environment. (5) Relaxation. (6) The bringing of all tics and accessory movements under control prior to eventual eradication. (7) The reduction of emotional tension. (8) Control of the organs of speech.

Though the different theories that we have reviewed do not agree as to just what constitutes the best method of correcting stammering, all of them have similar principles.
These are the basic fundamentals that should be employed in the treatment of stammering, to enable the stammerer to re-adjust himself to acquire correct speech. Different avenues of approach and interpretation have been utilized in an effort to arrive at successful methods of treatment. Importance should not be attached so much to the different forms of exercises that one must practice in order to overcome their disorder as to the principles behind these exercises.
The problem of this thesis is to evaluate the Dunlap method of the treatment of stuttering. Specifically, the outstanding feature of this method is that the stutterer should practice the habit of stuttering in a voluntary controlled manner, in the same way as he stutters involuntarily. Furthermore, the practicing should occur under the conditions of thought and desire appropriate to the destruction of the habit.

Dunlap emphasizes the fact that the stutterer should be made to understand that, in his daily life, he should not attempt to avoid stuttering under any circumstances, but should let his speech proceed in the usual manner, even though he may experience difficulty in speaking. Dunlap maintains that this step is necessary, for any effort to avoid the speech defect tends to fix the stuttering habit. The subject should be taught that stuttering, when practiced according to instructions, is not defective speech, but rather that it is a necessary accomplishment for the alleviation of his disorder. Dunlap stresses the fact that all stutterers who are applying his method of therapy should do so without any inhibitions, doubts, or qualms.

The underlying principle of this method of treatment is that anyone who deliberately practices a bad habit that he is trying to avoid, is practicing a form of punishment. Since there is a degree of emotion accompanying every form of punishment, the stutterer experiences this emotion when he begins to practice stuttering. Accordingly, by a process of
experimental extinction, the stutterer automatically overcomes his habit after enough practice because of the fact that stuttering, since it is now a form of punishment, no longer continues to arouse the emotion that is conducive to further stuttering. The result is, that since there is no reinforcement (the emotion) giving rise to a response (stuttering) the habit is gradually dissipated, and the stutterer acquires correct speech.
SUBJECTS and MATERIALS

Subjects:

The subjects in this experiment were four male students at Massachusetts State College. The fifth refers to S. K. who dropped out after two weeks of practice. They were afflicted with varying degrees of stammering.

The first subject, James H. Doherty is nineteen years of age and is a first year student at the Massachusetts State College Stockbridge School. He began to stutter between the ages of ten and twelve years, and during this time had treatment from Dr. Anderson at Harvard University. The period of treatment was of short duration, and so of course, Doherty did not notice any improvement in his speech.

He experiences difficulty when trying to imitate persons, but he can imitate animals without stammering. He can sing without any difficulty, but while reading, he stammers somewhat. He has no difficulty in conversing if there is only one person listening. He cannot recite without stammering, while narrating, he stammers slightly. While speaking, he evidences tics and accessory motions of the face and body.

His parents ignore his disorder and hope that some day it will be corrected. There are no other members of the family who are afflicted with a speech disorder. Only a cousin on his mother's side of the family has an impediment of speech.

The second subject, Maurice Featherman, is twenty-one years of age. He is a Junior and comes from a Jewish family. He began to stammer when he was about ten years of age.
According to Featherman, his ailment arose as a result of some friction or trouble in the family. At this time or before he came to college, he was treated for his disorder by one of the teachers in the Boston Stammering School. Although this treatment lasted about a year and a half, he noticed no improvement in his speech.

Mr. Featherman experiences a little difficulty when imitating but does not stammer at all when singing. However, while reading, conversing, reciting and narrating, he stammers rather badly. Accompanying his stammering are a number of tics and accessory motions of the face and body of which he is apparently unconscious. He also fears talking to a group of people who are not stammerers.

His parents are sympathetic and cooperative with him. There are no other members of the family afflicted with a speech disorder.

The third subject, Harvey Fram, is nineteen years of age. He is a Sophomore, and also comes from a Jewish family. He began to stammer when he was about eleven years of age and has no idea as to how he might have started. During this time he was treated for his speech disorder by a medical doctor in Worcester. He was told to talk the best he could, and that eventually, he would outgrow it.

He experiences a little difficulty when imitating, but does not stammer at all when he is singing. When he attempts to read, however, his speech is extremely bad. While conversing, reciting, and narrating, he experiences a certain
amount of difficulty. He also fears speaking in front of an audience. Accompanying his stammering are a number of tics and accessory motions of the face and body.

His parents attempt to help him when he has difficulty in speaking. There are no other members of the family afflicted with a disorder of speech.

The fourth subject, Edgar S. Beaumont, is twenty-two years of age. He is a Senior, and comes from an English family. He began to stammer from the time he began to talk, which was about two and a half years of age, and he believes that it might have arisen from imitating some other person with a speech disorder.

While he was a sophomore in college, he had treatment under Mr. Samuel D. Robbins, of the Boston Stammering School. He believes that there was some improvement shown in his speech, but thinks that there could have been more had he kept on practicing.

He experiences very little difficulty when imitating and does not stammer at all when singing. He can control his speech to a certain extent while reading; but when conversing, reciting, relating, and narrating, he stammers a great deal. He also fears talking to a group. Accompanying his stammering are a number of tics and accessory motions of the face and body.

His parents have tried and are still trying to help him get treatment that will enable him to overcome his disorder. There are no other members of the family afflicted with a
disorder of speech.

Materials:

Practice Sentences: For the beginning period of treatment special sentences were prepared as nearly as possible in the style of the subject's language. They were based on the different consonants that the subjects evidenced difficulty in pronouncing and were used exclusively for a part of the experiment. Dunlap emphasizes the fact that practice sentences should be used exclusively during the early period of treatment, in order that the stammerer may learn to stammer properly on the consonants which he finds difficult to pronounce.

The following are the practice sentences:

Sentences based on consonant "B"

1. Ben batted the baseball with the bat.
2. The boys begged the ball-player to bat them the ball.
3. The ball bounced out of bounds while the boys were playing basketball.
4. The boatman beached his boat on the beach.
5. The busman backed the bus into the barn.

Sentences based on consonant "C" (hard) or "K"

1. Carl cooked the cabbage and canned the corn.
2. Katie came in her cute costume.
3. The commentator commenced to commentate on the commerce of the country.
4. The Kiel Canal carries the commerce of the country.
5. The campers cooked the cod over the campfire

Sentences based on consonant "F"

1. Fanny fanned the flames and fried the fish.
2. Fire-fighters fight with fury to forestall a fire.
3. The fish flicked its fin and floated in the foam.
4. The flowers flattened their blossoms against the fence.
5. The farmer found the foal and fled to the farm.

Sentences based on consonant "H"

1. The hungry hunter ate some honey while hunting a hyena.
2. The hurricane hurled the house to a huge height.
3. Harry hummed a hymn while hewing a huge tree.
4. Henry and the herdsman herded the horses off the highway.
5. The Hindu and hireling went to Hindustan to hire a house.

Sentences based on consonant "J"

1. The journalist journeyed to Jerusalem to join the other journalists.
2. The jailer jailed the juvenile in the jail.
3. The jury was jubilant with the judgment that the judge had made.
4. The jovial judge was jubilant over the jovialness of the juvenile.
5. The jocund jailer was jovial at the judge and the jury.

Sentences based on consonant "L"

1. Lillian lit the lamps in the living-room.
2. The lake looked lovely in the light from the land.
3. The land owned by the land-owners was laid out in large lots.
4. The lady left the little lad and lit the lamp.
5. The land-lord took the land-owners to see the lovely landscape.

Sentences based on consonant "M"

1. Mary made the maple sugar for her mother.
2. Maude marked the mistakes that Martha made.
3. Mary and her mother missed a meeting with a misanthrope.
4. The musician made a modulation in a merry medley.
5. The Mogul made a mat of mohair that he marketed to the Mohamadean.
Sentences based on consonant "m"

1. The newsman needs news for his newspaper.
2. Ned and Nan noticed the newsman reading the news.
3. Nan took a needful nap at noon.
4. Nan and her niece noticed a nasturtium in November.
5. The narrator narrated a narrative to the Norwegians.

Sentences based on consonant "p"

1. The Pied Piper played his pipe.
2. Peter played a piece on the piano.
3. The prince popped a peck of pop corn on a popper.
4. Palm Beach is a place for people who come to play.
5. Playful people like to play with others and be pleased.

Sentences based on consonant "q"

1. The Quakers quaked at the sight.
2. The queen quarreled over the quantity of quinine.
3. The Quakers played a quiet game of quoits.
4. A quiz and a questionnaire are composed of a number of questions.
5. The queen sent a questionnaire to ascertain the number of quotable quotations that could be quoted.

Sentences based on consonant "r"

1. Ray ran into a ram on the road.
2. Reason raises the mind to the realm of rationalism which is refreshing to a race.
3. Rover raised his head from the rug to rejoice with Ray.
4. A riveter riveted, raising his voice above the roar of the rivets.
5. The rain ran in rivulets down the ravine.

Sentences based on consonant "s"

1. Samay saw a sack of stones.
2. She slid down the hill on a sled.
3. A steep slippery slope makes speedy skiing and sliding.
4. A sailboat sank in the stormy sea after striking a snag.
5. Stewart sang a song simply silly and sorrowful.

Sentences based on consonant "T"
1. Tom took the toys to the tot.
2. Teddy took a taste of the tarts and toddled to the table.
3. Tad took the train to the temple where he taught tentatively.
4. The Titan took the task of trundling the trunks.
5. The Tahitian took a trip to the tailor.

Sentences based on consonant "T"
1. The tarts tasted good to the tots.
2. The twins took a trip to Tangiers on a tanker.
3. The tornado tore a hole in the tent.
4. Tennis is a tiring game for the tender.
5. Telltale tactics of the tattler told in the tales he tried to tell.

Sentences based on consonant "W"
1. Walter wound his watch.
2. The warden worked his wards in a workhouse.
3. The woman waved her wand at the passing wagon.
4. The workman went to work in the warmth of the workhouse.
5. The workman whistled to the workers on the wharf.

Sentences based on consonant "WH"
1. The wheat was wheeled to the wharf.
2. The whale whirled in the whirlpool against the wharf.
3. The whippet whimpered and whirled where he was tied.
4. The whippoorwill whistled while it whirled in the whirlwind.
5. The wheelwright whispered with a wheeze and a whistle.

Sentences based on consonant "CL"
1. Claude clung to a cleft while climbing up a cliff.
2. The clerk clothed the clown who came in to be clothed.
3. The clambake was held in the clover on top of a cliff.
4. The clever clairvoyant collected a claim from his clients for his clairvoyance.
5. Clem and his classmates played the classics on their clarinets.

Sentences based on consonant "ST"
1. The stammerer stammered when he started to state a stanza.
2. The steamer steamed through the stormy straits under full steam, towing a scow.
3. The stowaway stole stealthily from the steamer, and found himself in a strange country, in dire straits.
4. The steed, standing in the stall, was a state-ly stallion.
5. The steeple-jack started up the steeple which was swaying in the storm.

Rating Scales: To enable the raters to determine the degree of each of the subject's disorder as well as to have some scale of measuring any possible progress, rating scales were devised.

The original rating scale is divided into two sections. The first section determines the degree of stammering together with the degree of emotion accompanying the stammering, in conversation and reading. Any tics or accessory motions that the subject may demonstrate while conversing and reading are also rated.

In the second section, the difficult consonants and vowels that the stammerer may evidence difficulty in pronouncing in conversation and reading are checked.

After using this scale for rating four of the subjects, it was found to be a little unwieldly and rather difficult to score. Accordingly, a revised rating scale was made.
The revised rating scale is also composed of two sections. The first section is devoted to reading. In this part, the degree of stammering, the degree of emotion accompanying the stammering, all tics and accessory motions that the individual may exhibit, and the number of difficult consonants and vowels on which the subject stammers while reading the easy and difficult passages are rated under the heading, Reading.

The second part of the scale is devoted to conversation, and the same functions are rated in this section. In the original rating scale, reading and conversation were rated together; in the revised one, they are separated. The revised scale gives clearer indication as to just how each stammerer reacts to reading and to conversation. The results secured from this type of rating scale, therefore, tend to be more accurate than the early system.

Rating scales were necessary in this experiment to determine the degree of stuttering exhibited by the different subjects. Time was another factor in determining the means employed in rating the subjects. Some device that would be capable of measuring a subject's disorder and the degree of improvement shown had to be formulated rapidly. Rating scales offered the only solution.

Rating scales have some disadvantage, however. Being the subjective ratings of a group of judges, they are not of highest reliability. Furthermore, in order to secure most reliable results with rating scales there should be as large a
number of raters as possible. The "halo" effect, the situation in which a rater is consciously or unconsciously influenced by the subject previously rated, also detracts from the reliability of this system. One unknowingly reads into the subject he is rating characteristics or mannerisms that were evidenced by the previous subject.

There are other better and more accurate methods, to be sure, of rating the degree of a stammerer's disorder. One is motion pictures of the stammerers as they speak, with sound attachment to record their voices. Since necessary apparatus was not available in the laboratory, this method could not be utilized in this experiment.

The original and the revised rating scales are below.

**Rating Scale for Subjects**

1. Subject__________________________
2. Reading Sample__________________________
3. Date__________________________
4. Rater__________________________

1. If the subject stutters while in general conversation, check the number which you think best represents the degree of his stuttering. (1. indicates practically no stuttering; 10 indicates an extreme degree of stuttering.)

0 1 2 3 4 5 6 7 8 9 10

4. Indicate the degree of emotion in the same way.

0 1 2 3 4 5 6 7 8 9 10

2. If the subject stutters while reading, check the number which you think best represents the degree of his stuttering.

0 1 2 3 4 5 6 7 8 9 10
A. Does the subject evidence any degree of emotion in Reading? Check the appropriate number.

0 1 2 3 4 5 6 7 8 9 10

B. Does this condition occur when 1. ( ) Beginning Reading; 2. ( ) During progress of Reading; 3. ( ) After Reading is ended; 4. ( ) Throughout the whole Reading test.

3. Does the Subject show any evidence of Tics, or Accessory Motions of any kind, either during conversation or reading?

A. In situations where he experiences difficulty in pronouncing words, syllables, or consonants.
( ) Yes (of what nature) ( ) No

B. In situations where he does not experience any difficulty in speaking.
( ) Yes (of what nature) ( ) No

Consonant and Vowel Charts

1. Check Below, as accurately as you can, the consonant or consonants, on which the Subject stutters while in reading and while in conversation.

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<thead>
<tr>
<th>Labials</th>
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<th>Lingual Dentals</th>
<th>Sibilants</th>
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<td>f</td>
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2. Check Below, as accurately as you can, the Double Consonants on which the Subject stutters.

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<th>SL</th>
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3. **Check Below**, the **Vowels** on which the **Subject** evidences **difficulty** (of any degree) and frequency of stuttering in uttering.

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**Revised Rating Scale:**

**Rating Scales for Subjects:**

1. **Subject**

2. **Date**

3. **Later**

**Directions:** Observe as carefully as possible during **Conversation** and **Reading**, and check:

1. **Degree of Stuttering** and **Stuttering**. 2. **Any Tics** or Accessory **Motions** manifested.

3. Write down the **Vowels** and **Consonants** in the appropriate column, each time the **Subject** may have difficulty in pronouncing, and the **Frequency of difficulty** for each.

**Conversation:**

1. If the **Subject stutters** and shows **emotion** while in general conversation, check the number which you think best represents the degree of stuttering and emotion.

   **A. Degree of Stuttering**
   
   0 1 2 3 4 5 6 7 8 9 10

   **B. Degree of Emotion**
   
   0 1 2 3 4 5 6 7 8 9 10

2. Write down in your own words, in space provided for purpose, any possible **Tics** or **Accessory motions**, that the **Subject** may manifest:
A. Do these take place, At Beginning Conversation ( )
   During Conversation ( ) When Conversation is Ended ( )

3. Write down the Vowels and Consonants beginning with each of the letters in the Table below, upon which the Subject may have difficulty in pronouncing, and the frequency of difficulty for each consonant and vowel.


Reading: (page 2)

1. If the Subject stutters and shows emotion while reading, check the number which you think best represents the degree of stuttering and emotion.

   A. Degree of Stuttering    B. Degree of Emotion
   0 1 2 3 4 5 6 7 8 9 10 0 1 2 3 4 5 6 7 8 9 10

2. Write down in your own words in the space provided, any possible Tics or Accessory motions, the Subject may manifest:

   A. Do these take place at, Beginning Reading ( )
   During Reading ( ) After Reading is Ended ( )

3. Write in the Vowels and Consonants in the Tables provided, upon which the Subject may have difficulty in pronouncing, and the frequency of difficulty for each.
Difficult Reading:

Easy Reading:

Reading Passages: In order to have standard reading passages on which the subjects could be rated at the beginning and end of the experiment, two passages, one "difficult" and one "easy" were selected. The degree of difficulty is determined by the manner in which the difficult consonants are used in complicated or easy syntax. The passages are as follows:

Difficult Reading

"As examples of imaginary concepts, Kant cites clairvoyance and telepathy, "the possibility of which has nothing to rest on because it is not founded on experience and its known laws". Without such foundations, imaginary concepts "are and can only be arbitrary combinations of thought which, though they contain nothing contradictory in themselves, have no claim to objective reality," or even to objective
possibility.

To assert objective reality of a phenomenon, the phenomenon must be perceptible as well as conceivable, since "perception, which supplies the material of a concept, is the only characteristic of reality." At the same time, reality may be attributed to things as yet unperceived, provided these possible perceptions "hang together with some other perceptions according to the principles of their empirical connection." For example, since experience, as contrasted with a mere higgledy-piggledy "rhapsody of perceptions," must hang together according to the categories of substance and accident, causality, reciprocity, etc., we can assert that any present phenomenon has its cause in some other phenomenon, whether or not that other phenomenon be perceived or unperceived. So, too, we can be sure that it will have a perceptible effect, whether or not that effect falls under our observation. Furthermore, we can rest assured that those unperceived causes and effects will, like perceived ones, be substances possessed of accidents. Or again, we can be sure that on the other side of the moon, which we never perceive, real, or in other words, perceptible, features co-exist in reciprocal communion as they do on the side presented to our view."

"Easy Passage:"

"The question as to who may vote for the House of Commons, has been, during the nineteenth century, the principal point of what was called "reform" par excellence. A
beginning was made in the Act of 1332, when Parliament, after long hesitation in the people's mind and even a close approach to bloodshed, finally dared to touch the ark of the covenant. For four hundred years, a sufficient definition of suffrage has been the "forty shilling" freeholders. Those only might vote who owned land that was worth forty shillings a year, net. The forty shillings had been set in the fifteenth century, and the decline in the value of money had gradually turned this once considerable sum, into an apparently slight, ridiculously slight, property qualification. But if the sum was small, the requirement of ownership bulked enormously, more and more restrictively. In so closely congested a population as England's, ownership of land in the strict legal sense, tends to fall into few hands. If those only who owned land could vote, then, even though the amount were only forty shillings a year, the net result was a highly aristocratic suffrage. There was also, it is true, the borough suffrage, that is, the right to vote in the presumably urban areas, designated as boroughs, which was not uniform, but varied with the constitution of the borough. In some boroughs, for instance, Westminster, the right to vote was so widely shared, as to constitute a fair testing of the will of the community. In many other boroughs, however, the right to vote was allotted according to some principle, which may have had reason in it, in the Middle Ages, but by the nineteenth century had become capricious and sometimes ridiculous in its effect. Furthermore, the industrial revolution had brought about an immense current of internal migration,
the crowding of some areas, the depopulation of others. Two members of Parliament might be elected by a constituency which now comprised no more than the half-dozen tenants of one land-lord."
PROCEDURE

Four of the subjects were tested or rated on March 4, 1938 before treatment was begun. They were J. Doherty, H. Featherman, H. Fram, and S. Rosen. For this initial rating, the unrevised rating scale was used. The group of raters consisted of two members of the Massachusetts State College department of Psychology—one faculty member of the department of Education; one member of the faculty from the English department; and two graduate students in the Psychology department. All were familiar with rating techniques.

The subjects were tested individually. Prior to rating the subjects, the raters were reminded orally to observe each subject as closely as possible and to rate them on the specific items in the rating.

For the initial rating, the subjects sat down facing the raters. To determine the nature of each of their disorders, they were questioned by the writer concerning their name, age, home, present status in college, any previous treatment for their stammering, and the attitude of their parents and teachers toward their disorders. The raters were then given an opportunity to question each subject concerning any matter they desired.

In order that the degree to which each subject stammered might be determined, each was given two printed pages to read aloud. One was the difficult passage, and the other was the easy reading. In both of these passages, the subjects were rated on the same items as they were for conversation.
The fifth subject, E. Beaumont, was tested March 3, 1938. The same group of raters, with one exception, graded him on the nature and degree of his impediment of speech. The same procedure for conversation and reading was applied. The revised rating scale was used in this case.

For the periods of treatment following the initial test, J. Doherty had lessons every week on Tuesdays and Thursdays from 3:45—4:45 P.M.; M. Featherman on Mondays from 4:00—4:30 P.M.; Thursdays from 10:00—11:00 A.M., and Fridays from 4:00—5:00 P.M.; H. Fram on Wednesdays from 2:00—3:00 P.M.; and Saturdays from 10:00—11:15 A.M.; S. Rosen on Mondays, Tuesdays and Thursdays from 1:00—1:30 P.M.; and E. Beaumont on Mondays from 4:30—5:00 P.M., Tuesdays from 3:00—3:30 P.M. and on Thursdays from 4:30—5:00 P.M.

Prior to the beginning of treatment, the subjects were given the following typed instructions to read very carefully and to keep in their possession:

"Before beginning this period of treatment for your speech disorder, it will be to your advantage to observe and adhere to, as carefully as possible, the following instructions:

Throughout your practice periods, you will make every effort to stammer. I want you to keep always in mind throughout the period of treatment, that when you practice stammering according to the instructions you will receive, it is not defective speech and it is not deplorable, but rather, for this method of treatment of your speech disorder, it is a necessary accomplishment, and through it, you will be aided in acquiring the proper and correct approach to the alleviation of your disorder. Try, therefore, to adopt this one very important idea, "The better I stammer now, the quicker I will break the habit of stammering."

The importance of these instructions was stressed to the subjects. They were advised to keep the idea firmly in mind
that, henceforth, they should practice stammering voluntarily, whereas previously, they had been trying to avoid stammering. The subjects assured the instructor that they understood perfectly and clearly, and would make every effort to adhere to, and practice as faithfully and consistently as possible, the principles and methods as they are outlined in Dunlap's method of therapy.

A battery of test or practice sentences (see Materials) which was based upon the consonants that evidenced difficulty in pronouncing, was constructed. At the discretion of the instructor, the most difficult consonants in each individual case (as noted by their frequency of appearance in the rating scales), were presented first; then the next most difficult; and so on, until finally the least difficult were presented. The reason for doing this was that the instructor felt that the difficult consonants should be practiced first, in order that more time could be spent on them and less time consumed on the easier consonants.

Usually, one or two consonants were presented during a practice period of thirty minutes; while during a practice period of one hour two or three consonants were practiced. The procedure, of course, varied in each individual case according to the amount and rapidity of progress shown by each subject in the practice periods.

The method of presenting each consonant was as follows: The instructor would read to the subject, each practice sentence employing the consonant upon which practice was
concentrated at the moment. The subject would repeat it to the instructor, practicing voluntary stammering. For example, in an exercise on the consonant "P", the instructor would read, "The Prince popped a peck of pop corn on a popper." The student would repeat the sentence, practicing voluntary stammering on all initial P's, -"The P-P-P-Prince p-p-p-popped a p-p-p-peck of p-p-p-pop corn on a p-p-p-popper." These were concentrated upon until the subjects could easily stammer the initial consonants. All the consonants were presented in the same general manner.

Practice on difficult words was performed similarly with one or two minor variations. In situations where certain words in the test sentences seemed to be extremely hard to pronounce, a different method was employed. If a subject could not achieve correct pronunciation of the word "play," the stammering was surmounted by first repeating the sound of the initial "P" as "p-p-p-". This exercise continued until he was certain he could pronounce "P" without any difficulty. Then the "L" was added and the subject would say "pl-pl-pl-" until he was sure he could pronounce "PL" without stammering. Finally the "a" was added, whereupon the student would proceed to repeat "pl-a-pla-pla-" until he was certain he could pronounce the word "play" easily. Later, in the practice periods, if difficulty was encountered on the same or other words, the subject would begin by stammering the initial consonant voluntarily, and then would proceed gradually to pronounce the whole word. All extremely difficult
words were approached in the same manner. In each case, of course, the length of time spent on practicing such words varied in proportion to the ease or rapidity with which each one overcame his stammering, or gained ability to pronounce that particular word.

From the earlier stages of this experiment, stammering in unison was utilized to a considerable degree. The instructor would repeat the sentences to the subject. However, instead of having him say them in a controlled manner alone (as illustrated previously), the instructor would stammer them with him. This form of practice enabled the subject and instructor to synchronize their stammering. In this way the students grasped the controlled habit a little more quickly and also seemed to gain more confidence. This method was also applied to difficult words.

Stammering-practice on the consonants that were found difficult was continued for approximately five weeks. From about the end of the fifth week until the close of the experiment, the time was occupied in having the men try to speak correctly. Both the subjects and the instructor felt that the habit of controlled stammering had become sufficiently ingrained by this time. The procedure was as follows: Each student would stammer a sentence until he could stammer it well. For example, in practicing correct speaking on the consonant "T", the instructor would read to the subject, "Teddy took a taste of the tarts and toddled to the table." The subject would stammer it thus, "T-T-T-Teddy
took a taste of the tarts and toddled to the table." He would stammer this sentence until he could control his stammering. Then he would immediately speak it correctly without trying to stammer. This method of practicing was employed for each subject until he failed to speak a sentence correctly. Then that situation arose, stammering exercises on that consonant were resumed, to avoid having him try to speak correctly and fail. This variation of practice took place on each consonant that the student found difficulty in pronouncing.

Prior to the close of the experiment (May 2, 1938), there were exercises on speaking the practice sentences correctly and skipping or omitting the words that the men found difficulty in pronouncing. The subject and the instructor would synchronize their speaking of a word. For instance, in the sentence, "The journalist journeyed to Jerusalem to join the other journalists," the student might experience difficulty in pronouncing without delay the words "journeyed" and "Jerusalem." In that case, he and the instructor would synchronize their speaking of the sentence as, "The journalist j——— to J——— to join the other journalists." This was the final form of practice before the experiment ended.

Throughout the course of the experiment, the consonants practiced in the previous lesson were reviewed before a different consonant or consonants were presented. It was found that by frequent review, subjects maintained a better grasp of the consonants they had practiced earlier.
It might also be mentioned that throughout the duration of this experiment, conversation with the subjects occurred at the beginning of each practice lesson. During the few minutes of conversation, they were instructed frequently to make no special effort not to stammer, but to let their speech proceed naturally. The underlying purpose was to discourage all inhibition against stammering.

The instructor frequently examined the subjects to make sure that all of them were applying in their daily conversations, the principles and methods they had learned. He was assured that they were in so far as it was possible to do so.
RESULTS

Two of the subjects withdrew before the experiment came to a close. The academic year for J. D. ended March 25, 1938. Accordingly, to determine whether he had made any progress in overcoming his stammering, he was given a final rating March 24. S. R. withdrew from the experiment March 17, after two weeks' training.

For the final rating which was held May 2, 1938, the subjects went through the same procedure as for the initial rating. The revised rating scale was used exclusively for the final testing.

To determine the degree of progress made in each case, an effort was made to compare the initial rating with the final rating of each subject and to tabulate the results found therein as clearly as possible.

The subject J. D. will be considered first. At his final test two of the raters were unavoidably absent. The findings of both the initial and final tests are as follows:

**Conversation:**

1. **Degree of Stuttering:**

   **Initial Rating** — 10; 5; 7; 7; 6; 3.  

1 Each number represents the rating recorded by a different rater of the degree of stuttering, using the scale of 0 = none, 10 = extreme. The same order of ratings is maintained in both the initial and final tests throughout the experiment. For instance, 10 is the rating by rater No. 1; 5 is the rating by rater No. 2; 7 is the rating by rater No. 3; the next 7 is the rating by rater No. 4, etc.
correctly that formerly were difficult for him. The con-
sonants on which he stammered in both the initial and final
tests were only slightly less difficult for him to pronounce
in the latter test. He stammered on ten vowels in the ini-
tial test and on only four in the final test. This fact in-
dicates that he is able to pronounce six vowels correctly.
The vowels on which he stammered in both tests, seemed less
difficult for him to pronounce in the final test.

Subject M. F. will be considered next.

Before he began treatment for his speech disorder, he
was obsessed by discouragement. Although every effort was
made to diminish that attitude during the practice periods,
it, nevertheless, persisted throughout the experiment. How-
ever, at the close of the experiment, he voiced the opinion
that he believed he had experienced some improvement, es-
pecially on the letters and syllables with which he formerly
had difficulty.

At both M. F.'s initial and final tests, one of the
raters was unavoidably absent.

The results of the initial and final tests follow.

Conversation:

1. Degree of Stuttering:

   Initial Rating--- 7;6;3;4;5.
   Final Rating--- 3;5;2;5;6.

2. Degree of Emotion:

   Initial Rating--- 7;4;0;1;4.
   Final Rating--- 5;6;0;2;3.
D(8); F(4); G(3); H(2); J(3); L(16); M(4); N(4); P(29); Q(2); R(13); S(5); T(16); V(2); BL(1); PR(3); ST(4); TR(1); TH(4).

**Final Rating**: (Total number checked by four raters) C(hard) or K(15); F(2); G(1); H(1); J(1); L(3); M(1); N(1); P(26); Q(3); S(1); T(14).

3. **Difficult Vowels**:

**Initial Rating**: (Total number checked by the six raters) a(19); e(1); i(12); o(8); u(2); ah(1); oo(2); w(5); wh(3); y(2).

**Final Rating**: (Total number of times checked for four raters) a(6); e(1); i(5); o(2).

After an examination of these results tabulated for J. D., the degree of correction can be summarized in the following manner.

He stammered less in conversation after having treatment than before, although the degree of emotion accompanying his speaking showed no appreciable decline. He approached almost complete cessation of stammering in reading, and the accompanying emotion was diminished. The number of tics and accessory motions in conversation were partially reduced after treatment and there were no tics or accessory motions while reading. The number of consonants on which J. D. stammered in the initial test was twenty-two. After treatment, the number of consonants on which he stammered in the final test was twelve. This indicates improvement. The subject was able to pronounce without stammering ten consonants.
Final Rating --- 1;2;3;3;3.

2. **Degree of Emotion**

   **Initial Rating** --- 3;7;5;5;3;7.

   **Final Rating** --- 5;4;7;7;4.

**Reading:**

1. **Degree of Stuttering:**

   **Initial Rating** --- 9;5;8;6;8;7.

   **Final Rating** --- 1;3;3;3;3.

2. **Degree of Emotion:**

   **Initial Rating** --- 5;5;6;4;2;6.

   **Final Rating** --- 4;4;4;4;3.

**Conversation and Reading:**

1. **Tics and Other Accessory Motions:**

   **Initial Rating:** Raters: 1, ducking the head; 2, tics of the mouth, lips and face; 3, none; 4, turns and slants the head; 5, rubbing the fingers of one hand with the tips of fingers of the other; 6, movements of the hands and feet.

   **Final Rating:** Raters: 1, none; 2, none; 3, --; 4, crossing and uncrossing the knees and rubbing the face; 5, --; 6, accessory motions of the hands and stroking and shifting of the feet. (These tics and accessory motions took place in conversation only).

2. **Difficult Consonants:**

   **Initial Rating:** (Total number checked by the six raters) B(23); C(hard) or K(17); C(soft) (3);
Reading:

1. Degree of Stuttering:
   Initial Rating: 3;5;3;6;7.
   Final Rating: 3;5;7;7;--.

2. Degree of Emotion:
   Initial Rating: 3;3;0;0;4.
   Final Rating: 2;7;2;3;--.

Conversation and Reading:

1. Tics and Other Accessory Motions:
   Initial Rating: Raters: 1, none; 2, tics of the mouth; 3, none; 4, none; 5, motions of the hands and feet.
   Final Rating: Raters: 1, none; 2, none; 3, accessory motions of the mouth; 4, twitching the nose; 5, accessory motions of the hands (only in conversation).

2. Difficult Consonants:
   Initial Rating: (Total number checked by the five raters) B(13); C(hard) or K(13); C(soft) (5); D(4); F(10); G(3); H(4); J(6); L(4); M(9); N(1); P(10); Q(1); R(4); S(25); T(12); V(9); L(1); BL(1); BR(2); CH(1); CR(1); PL(1); PR(3); TH(3); TR(2); SM(1); SP(2); ST(13).
   Final Rating: (Total number checked by the five raters) B(12); C(hard) or K(32); D(3); F(26); G(4); H(4); J(3); L(1); M(10); N(3); N(3); P(23); R(11); S(90); V(5); FR(1); ER(1); SH(6); ST(2);
3. Difficult Vowels:

**Initial Rating:** (Total number checked by the five raters). a(10); e(6); i(12); o(3); ah(1); w(4); y(3); am(1).

**Final Rating:** (Total number checked by the five raters). a(3); e(4); o(1); w(5); y(4).

An examination of these results tabulated for M. F. shows that the degree of correction can be summarized as follows.

After treatment for his disorder, very little improvement was indicated in his speech while conversing. Two of the raters believed there was very little improvement but two others believed that the subject's degree of stammering was a little worse in general conversation. The emotion accompanying his general conversation did not diminish enough to be significant. The subject's degree of stammering while reading, likewise indicated no improvement after treatment.

The degree of emotion accompanying the subject's speech while reading gave no indications of decline. During conversation and reading, the number of tics and accessory motions seemed to be constant.

After treatment, the subject manifested some degree of improvement in being able to pronounce more consonants correctly. At the initial test, the number of consonants on which the subject stammered was twenty-nine; at the final test, twenty. There is indication, therefore, that after treatment the subject was able to pronounce correctly nine
consonants that formerly were difficult for him.

The consonants on which the subject stammered in both tests were found to give him less trouble in the final test; while others were found to give him more difficulty, after practice on them.

The subject also indicates considerable improvement in being able to pronounce more vowel sounds correctly after treatment. At the initial test, the number of vowels on which the subject stammered was eight; at the final test, five. This fact indicates, that, after having treatment, the subject can pronounce correctly, three vowels that formerly were difficult for him.

Some of the vowels on which the subject stammered in both tests were less troublesome to pronounce at the final test, while others were slightly more difficult to pronounce after practice on them.

Subject H. F. will be considered next. After having treatment during the course of this experiment, he personally believed that he had been helped somewhat, especially in being able to speak in conversation more freely and easily.

At the final test, one of the raters was unavoidably absent. The results of both tests are tabulated below.

Conversational:

1. Degree of Stuttering
   
   **Initial Rating**---2;3;1;4;2;4.
   
   **Final Rating**---0;2;1;---1;2.

2. Degree of Emotion
   
   **Initial Rating**---2;6;3;7;4;9.

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<th>Degree of Stuttering</th>
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<th>Degree of Emotion</th>
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Final Rating: 15;1;14;2.

Reading:

1. **Degree of Stuttering**
   - Initial Rating: 10;6;3;17;8.
   - Final Rating: -7;6;15;8.

2. **Degree of Emotion**
   - Initial Rating: 10;6;7;7;4;9.
   - Final Rating: -8;3;17;5.

**Conversation and Reading**

1. **Tics and Other Accessory Motions**
   - Initial Rating: Raters: 1, ducking the head; 2, tics of hands and face; 3, none; 4, restlessness; 5, continual movement of his legs and shifting of position in the chair; 6, continual fumbling with the buttons on his clothes, ring, and beard.
   - Final Rating: Raters: 1, none; 2, movements of the feet and hands; 3, none; 4,--; 5, none; 6, movements of the hands and feet.

2. **Difficult Consonants**
   - Initial Rating: (Total number checked by the six raters) B(4); C(hard) or K(15); C(soft) (5); F(9); H(6); M(6); N(1); P(12); Q(2); R(6); S(4); T(2); CL(1); KW(1); ST(1); TH(4).
   - Final Rating: (Total number checked by the five raters) B(3); C(hard) or K(19); D(3); F(3); H(6); L(1); M(4); P(24); R(2); S(3); T(8); TH(2); PR(1).
3. **Difficult Vowels:**

*Initial Rating:* (Total number checked by the six raters) a(7); e(1); i(3); o(7); u(2); at(1); aw(3); w(12); wh(1); y(1).

*Final Rating:* (Total number checked by the six raters) a(12); e(1); o(9); wh(1).

From an examination of these results tabulated for H. F., the degree of correction can be summarized as follows:

After treatment, the subject's stammering, as well as his emotional condition, was lessened while conversing. The degree of stammering in reading, as well as the degree of emotion accompanying his reading, was not lessened. In conversation and reading, greater facility in speech was indicated by a reduction in the number of tics and accessory motions. In overcoming his stammering on difficult consonants, the subject indicated some degree of improvement. The subject could pronounce three better after treatment, having stammered on sixteen in the initial test, and on only thirteen later. Some consonants on which the subject stammered in both tests seemed to be less difficult for him to pronounce in the final test; while on others, his disorder seemed to have increased after having practiced on them.

In overcoming his stammering on the vowels, the subject showed considerable improvement. The number of vowels on which the subject experienced difficulty in the initial test was ten; in the final test, four. This fact shows that, after treatment, the subject could pronounce six vowels better.
The vowels on which the subject stammered in both tests, seemed to be a little more difficult for him to pronounce after his treatment with the exception of one vowel on which he stammered less in the final test.

The last subject to be considered is E. B. For the initial test, one of the raters was unable to be present; for the final test, another was unable to be present. In both tests, the revised rating scale was used. The results are tabulated as follows:

**Conversation:**

1. **Degree of Stuttering:**
   - **Initial Rating:** 8;3;6;6;7;-
   - **Final Rating:** 4;4;--;5;4;5.

2. **Degree of Emotion:**
   - **Initial Rating:** 4;3;2;5;0;-
   - **Final Rating:** 3;2;--;1;6.

3. **Tics and Other Accessory Motions:**
   - **Initial Rating:** Raters: 1, turning the head and closing the eyes; 2, hand movements, fingering his face and tie; 3, twiddling his fingers; 4, lip movements without speech and finger movements; 5, none; 6,--.
   - **Final Rating:** Raters: 1, none; 2, movements of hands and feet; 3,--; 4, tapping with his hand and twitching of his facial muscles; 5, jaw movements; 6, none.
4. **Difficult Consonants**:

**Initial Rating**: (Total number checked by the five raters) B(10); G(hard) or K(10); C(soft) (5); D(6); F(10); G(6); H(5); L(6); M(10); N(1); P(2); R(4); S(21); T(28); V(7); BR(1); ST(1); TH(1).

**Final Rating**: (Total number checked by the five raters) B(7); C(hard) or K(23); D(1); F(14); G(2); L(1); M(2); P(11); Q(3); R(2); S(10); T(5); BR(1); PR(1); SH(1); ST(1); TH(1).

5. **Difficult Vowels**:

**Initial Rating**: (Total number checked by the five raters) a(5); e(2); i(10); u(3); w(22); y(6).

**Final Rating**: (Total number checked by the five raters) i(1); o(2); u(5).

**Reading**:

1. **Degree of Stuttering**:

   **Initial Rating** --- 4;6;2;4;3;-

   **Final Rating** --- 1;1;--;2;2;4.

2. **Degree of Emotion**:

   **Initial Rating** --- 1;3;2;5;0;-

   **Final Rating** --- 4;1;--;3;1;-

3. **Tics and Other Accessory Motions**:

   **Initial Rating**: Raters: 1, none; 2, hand movements; 3, none; 4, quivering of lips; 5, none; 6,---

   **Final Rating**: Raters: 1, none; 2, movements of hand and feet; 3,--; 4, twitching of the muscles of the face; 5, none; 6, none.
4. **Difficult Consonants:**

**Difficult Reading:**

**Initial Rating:** (Total number checked by the five raters) C(hard) or K(16); C(soft) (1); F(3); H(1); M(2); P(4); R(2); S(1); T(3); TA(1); TR(1);

**Final Rating:** (Total number checked by the five raters) C(hard) or K(11); F(2); P(5); T(2); TR(1).

**Easy Reading:**

**Initial Rating:** (Total number checked by the five raters) B(4); C(hard) or K(3); F(3); H(1); M(2); P(5); Q(3); R(4); S(4); T(13).

**Final Rating:** (Total number checked by the five raters) B(2); C(hard) or K(2); P(3); S(1); T(3); KR(1); ST(1).

5. **Difficult Vowels:**

**Difficult Reading:**

**Initial Rating:** (Total number checked by the five raters) a(4); w(1); y(1).

**Final Rating:** (Total number checked by the five raters) a(4); w(1).

**Easy Reading:**

**Initial Rating:** (Total number checked by the five raters) e(3); e(1); i(9); o(4); w(7).

**Final Rating:** (Total number checked by the five raters) o(1).
From these results tabulated for E. B., the degree of correction can be summarized as follows:

In his conversation it can be seen that, after the treatment, the subject gave indications of being able to converse with greater facility than before the treatment. The degree of emotion accompanying his speaking also seemed to be noticeably less. The tics and accessory motions accompanying his conversation, however, indicated no improvement. The number of consonants on which the subject stammered in the initial test, was eighteen. After treatment, the number was reduced to seventeen. After having had treatment and practice on the consonants, the subject was able to pronounce without stammering, only one more consonant that before gave him trouble. The number of vowels on which he had trouble in the initial test was six; the number on which he had trouble in the final test was three. This fact indicates that, after having treatment, the subject was able to pronounce correctly three vowels that formerly were incorrectly pronounced.

In reading, it can be seen by comparing the initial and final tests, that the subject showed some improvement in his speech, after treatment. At the final test, his stammering gave indications of being less acute while reading, than at the time of the initial test. The degree of emotion accompanying his reading, however, did not decrease. The number of tics and other accessory motions did not seem to be lessened; it seemed to be constant. During the difficult reading, the
number of consonants on which the subject stammered in the initial test, was eleven. The number on which he stammered in the final test was five. This fact indicates that after treatment, the subject is able to pronounce correctly six consonants that formerly he was unable to pronounce. The consonants on which he experienced trouble in pronouncing in both tests were, in general, a little less difficult for him to pronounce in the final test. During the easy reading, the number of consonants on which the subject stammered in the initial test was ten, and in the final test, seven. After treatment, he was able to pronounce correctly three consonants that formerly were troublesome for him. The consonants on which he experienced trouble in pronouncing in both tests were, in general, easier for him to pronounce in the final than in the initial test. During the difficult reading, the number of vowels on which he stammered in the initial test was three, and in the final test, two. After treatment, the subject is able to pronounce correctly only one more vowel that formerly had been troublesome. The vowels on which he stammered in both tests were, in general, no less difficult for him in the final test than in the initial test. During the easy reading, he stammered on five vowels, and on one in the final test; an improvement of four vowels after treatment. The vowels on which he stammered in both tests were, in general, less difficult for him in the final test than in the initial test.

Little need be said about the nature of the responses of
each subject to different phases of the treatment. The fundamental idea on which Dunlap's method of the treatment of stammering is based, is the practicing of controlled stammering. Therefore, after explaining to the students the reasons for this procedure and the necessity of acquiring the habit of stammering for the alleviation of their disorder, they quickly mastered the technique of voluntary, controlled stammering and proceeded to adapt themselves to this method of treatment.
The foregoing results give an indication of the effect Dunlap's Method of treatment had on the five subjects used in this experiment. The degree of improvement indicated by the rating scales varied widely in each case.

In discussing the above results, mention should be made to S.R.'s dropping out of the experiment after two weeks training. In his opinion, this method of treatment was giving indications of being more or less detrimental to his speech. He thought that it was increasingly difficult to speak and that his self-confidence was decreasing. However, it must be said that there were no judgements of raters or other evidence which indicated Rosen's lack of improvement. Although it might have been that he did not understand the theory of procedure well enough to keep his confidence from being shaken, it is also true that he did not continue the treatment a sufficient length of time to allow a fair judgement of its adequacies or inadequacies.

For the four other subjects, however, there are indications that they did improve in different ways and in different degrees as a result of the application of Dunlap's method. Different degrees of improvement were indicated in their manner of speaking, with the exception of one subject (H. Featherman) who evidenced no noticeable improvement at all in either conversation or reading.

The rated degree of emotion accompanying the conversation...
and reading, however, gives no indications of being materially lessened, for any of the subjects. In some cases, it is about the same as it was before the training; and in one or two cases, the degree of emotion accompanying the subject's conversation and reading is just a little greater. The induction would be then, that while there may be different degrees of improvement in the subject's conversation and reading, the degree of emotion accompanying their speaking in both cases might not necessarily be lessened, in order to enable a stammerer to effect some improvement in his speech. Perhaps, if a subject continued to improve his speech over a longer period of time, the degree of emotion accompanying his speaking might gradually become less.

It must be remembered, however, that one does not have to be affected with a speech disorder to become emotional when conversing and reading before a group; but stammerers show the emotional state more overtly in their attempts to speak under such conditions. It must also be remembered that the results of the experiments conducted on these subjects are the subjective reports of a group of people. It is possible, then, under such circumstances, that one rater might think that a subject was more emotional when conversing and reading than the subject actually was.

For these four subjects, the rating scales indicate that there were different degrees of improvement on the consonants that formerly gave each of these subjects extreme difficulty in pronouncing. In one case (J.D.), the results secured
were really quite remarkable. He showed more general improvement than any of the others.

The rest of the subjects manifested various degrees of improvement on the consonant sounds in the conversation and reading in the final test. Even the subject who probably evidenced the least improvement, was able to pronounce more consonants correctly in the final test.

It is also interesting to note that after treatment, the subjects pronounced the difficult consonants with fewer intervals of stammering. The same was true of the vowel sounds. Stammerers usually do not find vowels so troublesome as consonants to pronounce. However, these subjects did evidence different degrees of difficulty in attempting to utter vowel sounds, and showed various stages of improvement at the close of the experiment.

Little improvement was noted in the reduction of tics and other accessory motions evidenced by the subjects when they were being rated. In some cases, the same tics and accessory motions were noticed; in others, different ones appeared in the later test. General principles of habit formation would indicate that these tics and accessory speech motions could not necessarily be expected to disappear in the short period of training of this experiment.

The above discussion of results leads to the final conclusion that Dunlap's theory and method are of value in correcting stammering habits but that they do not seem to lead
to good results in every case.

It should be pointed out, however, that the effectiveness of any method of treating stuttering will be dependent on the following: (1) the method itself; (2) the length of time during which good intelligent practice is carried on; (3) the degree to which the stammerer carries over into his daily conversation, the principles which he has been practicing; (4) individual differences of the stutterers; and (5) the degree to which the stutterer will acquire an optimistic, favorable attitude toward the treatment. The lack of consideration of any one of these principles might interfere with recovery.
A review of the causes and therapy of stuttering indicated that there are certain general and specific causes of this disorder which require individual methods of treatment. Though these different theories may be seemingly antagonistic to each other in the manner in which they attempt to explain the causation and treatment of stuttering, fundamentally, they are similar, having common elements, ideas, and principles that differ only in the way in which they are explained and interpreted. The theories may be briefly summarized under causes and methods of therapy.

A. Causes:

1. Incoordination between the brain and muscles of speech. (This may be interpreted to be similar to 2.)
2. Lack of control over the muscles of speech.
3. Lack of proper ideation for correct speech.
4. Bad habits of speech.
5. The element of fear being conditioned by repeated failures in speech.
6. Other emotional disturbances.
7. The immediate environment of the individual.
8. General physical weakness.

B. Method of Therapy:

1. Physical Hygiene.
2. Mental Hygiene.
3. The reestablishment of coordination between the brain and speech muscles.
4. The development of proper attitudes toward speech, society, and the environment.
5. Relaxation.
6. Control of all tics and accessory motions.
7. The reduction of emotional tension.

In an effort to determine the validity of Dunlap’s Theory, an experiment in which five subjects were trained in stuttering following Dunlap’s method of treatment, was conducted over a period of two months (March 24 to May 2, 1938).

The experiment and the results may be summarized as follows:

1. Five male students at Massachusetts State College, were trained in the habit of practicing voluntary, controlled stuttering.

2. The subjects’ improvement in correct speech, emotional control, and tics was determined by having each subject rated before and after the experimental practice periods.

3. For the initial rating of four of the subjects, a preliminary rating scale was used. For the fifth subject the revised scale was used.

4. Standardized reading passages both easy and difficult were used in the initial and final rating.

5. For the periods of treatment, individual practice
sentences based on difficult consonants were used for each subject.

6. For the final rating a revised rating scale was used. The procedure used in both cases was the same.

7. The results of this experiment indicate that three of the four subjects made some improvement in general speaking ability.

8. One subject gave indications of securing a great amount of improvement.

9. The fifth subject withdrew because of alleged detrimental effects from application of this method of therapy.

10. There are indications, that this method of therapy, if applied for a longer period of time, would have yielded more worth while results.
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BIBLIOGRAPHY

1. Abadie: Begaiment Dysarthrique par Lesion Limente de la Capsule Interne. La Parole. 1902.


Approved by

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Harold W. Cary

Graduate Committee

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