



1946

## A Syllabus of Techniques for Correction of Speech Defects

William O. Pugh  
*University of the Pacific*

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A  
SYLLABUS OF TECHNIQUES  
FOR  
CORRECTION OF SPEECH DEFECTS

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By  
William O. Pugh

Stockton

1946

A Thesis  
Submitted to the Department of Speech  
College of the Pacific

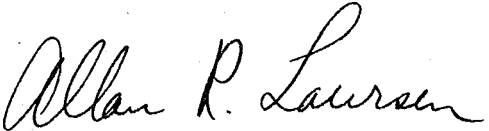
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In partial fulfillment  
of the  
Requirements for the  
Degree of Master of Arts

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APPROVED:  Chairman of the Thesis Committee

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## PART I

## INTRODUCTORY CONSIDERATIONS

## SECTION I

## PROBLEM

The problem is to survey the significant reference materials in the field of speech correction in order to ascertain and compile in digest-form these explanations of corrective techniques that are most valid with respect to consistency, both intrinsic and comparative.

## PROCEDURE

The procedure follows a generally accepted categorical descriptive scheme. Within the four major divisions of speech defects, viz., articulation, phonation, rhythm and symbolization, the various specific disorders are classified with brief statements of predominant facts and opinions regarding nature and cause. The main emphasis throughout is upon treatment of the specific disorders. The writer attempts to present the essential recommendations for procedure advocated by several of the better known authorities whose studies have been widely accepted by workers in the field of speech correction.

The basic pattern, then, includes a minimum of descriptive and diagnostic exposition to provide comprehension of the re-education phases. Objectives of these phases

usually include the following:

1. Recognition by the defective of his defect.
2. Discrimination between normal speech and the specific deviation.
3. Production of basic simple patterns in which the faulty entity is corrected.
4. Amplification of the corrected basic patterns toward correct production of the faulty elements in all the requirements of normal speech.
5. Consolidation of learned or relearned patterns to eliminate old, incorrect habits and to establish the corrected speech as a more effective instrument of basic communication.

## SECTION II

## GENERAL PRINCIPLES

## TO GUIDE THE SPEECH CLINICIAN

## PRIMARY CONCERN

The primary concern of speech correction is the person. "It is not enough to know what sort of speech defect a person has. In addition, one should know what kind of person has the speech defect. The speech defect has no particular meaning apart from the person who presents the defect. We are not interested in speech defects but in speech defectives."<sup>1</sup>

Van Riper proposes three questions for organizing personality information:

1. What marked differences of physical appearance, behavior, or environment distinguish this person from his associates?
2. Which of the differences were approved; which were penalized, and by whom?
3. How did this person react to this approval or penalty?

We must consider the approach to treatment of the individual in the light of all possible causes in his total

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<sup>1</sup> L. E. Travis, "A Point of View in Speech Correction", Proceedings American Speech Correction Association, VI, p. 1, (1936)

picture. To amplify this generalization, it may be essential for effective exploration of some cases to obtain pertinent information concerning all the items of a case history before the significant clue is found to be a remediable cause.

This paper is not concerned with details of testing or diagnostic procedures. However, the correctionist must have insight into the variations of the individual and the origin of his deviations from the normal range.

#### PRINCIPLES OF PROFESSIONAL CONDUCT

The clinician needs certain principles of professional conduct. The conscientious clinician treats each case as a unique individual. The more understanding of the person, the better the evaluation to guide corrective work. Where prognosis is poor, the fact should be fully understood by subject and interested members of his family. No promise of probable results should be made to anyone because the simplest defect may often be inexplicably persistent, whereas a more severe defect may be overcome with surprising ease.

Where remuneration is involved, all details must be known by everyone interested. Unless treatment is frankly experimental, any payment should be for work done, regardless of results.

Ethics requires confidential information to be treated with due respect. The patient should have full confidence in the clinician's intellectual honesty.

The following standards are requisites for the clinician's holding continued respect of subjects:

1. Refrain from emotional response to the speech defective's behavior.
2. Avoid undue familiarity or physical contact with the patient.
3. Refuse to argue, show surprise, disapproval, mirth or annoyance unless such expression is for definite purpose.
4. Plan your conferences and remedial work.

One standing objective is to teach the subject to work out his own problem. In the interests of ordinary efficiency, clinical work should be discontinued when further improvement can be achieved only with a very disproportionate expense in time and effort of both clinician and subject.

Knowing that no one technique is a panacea, we should keep abreast of progressive developments, giving all due consideration to helpful counsel from others who are qualified to supply information and skill we may lack. Reciprocally, we should share with fellow workers any knowledge we may have acquired, wider use of which will be beneficial to speech defectives in general.

#### MOTIVATION

The speech defective must be motivated toward correct speech. Before we can fairly expect any case to overcome deficiencies, there must be present the motivation or



desire of the individual to improve his speech. Child or adult, he must realize the utility of speech. He must have incentive for speaking better than he does. Simple stories and speech games are recommended by all experienced correctionists to hold the interests of young subjects. Reward stars on charts may be effective attention-holders. Almost certain incentive for adults is expectation of higher paid job opportunity possibly to come from improved speech. The following factors ordinarily contribute to the motivation of any speech defective:

1. Definite assignment to be mastered in given time.
2. Words of approval for conscientious effort and successful attempts.
3. Approval by family and friends of improved speech.

The desire for self-improvement rather than the narrow consequences of any given corrective assignment is of prime importance in motivation. In most instances, early acquaintance by the speech defective with the full plan of his treatment should increase incentive by helping him see the relation of his daily assignments to his further goal and the end objective — normal speech. Specific techniques recommended for gaining active attention of various subjects will be discussed later in this paper.

#### FIRST MEETING

The primary object is to become acquainted and thereby to establish rapport essential for succeeding treatment.

Clinicians will find it an opportunity for confirmation of the errors in speech indicated on the diagnostic sheet if a diagnosis has already been made. It is a time to foster interest, cooperation and understanding of why the meetings are held. The first meeting is especially important.<sup>2</sup>

#### GENERAL PROCEDURES

General remedial procedures are applicable to most cases. The first step is to enable the defective to recognize the difference between his speech and normal speech. In most adult cases, this difference can be shown by a playback of his speech record. The second step is to provide the necessary remedial procedures. The next step is up to the subject. He must carry out corrective assignments to discourage the retention of the faulty elements and to develop correct speech patterns. Van Riper advocates these precepts to defectives to force them to carry out their remedial work:

1. State your task and your determination to someone whose respect you greatly desire or wish to keep.
2. Plan a definite time and place for its accomplishment and tell that other person what they are.
3. Insist that he check up on your performance as soon as possible.<sup>3</sup>

We should emphasize particularly the need for much ear

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<sup>2</sup>C. Van Riper, Speech Correction Principles and Methods, p. 111.

<sup>3</sup>Ibid., p. 87.

training in order to enable the subject to distinguish the incorrect from the correct. "When repeating sounds to train the ear to distinguish between them, the same inflection and force should be used for both sounds. In dealing with voiced sounds a rising inflection seems to be best."<sup>4</sup> The fourth step is the actual use of the newly acquired speech technique.

### EXPLORATION

Exploration is the foundation of successful treatment in many cases. Modification of the better known techniques are numerous; and the conscientious clinician must early recognize the fact that there is no substitute for ingenuity. In any case the easiest way should be tried first. Thus, a child may readily accomplish correction simply by imitation of correct demonstration. In other cases, equally simple, indirect means may obtain results. For example, the child with a timid voice of insufficient force may improve his speech production merely by identifying himself with a big, gruff character and reciting appropriate lines in simple stories. Because of long-established faulty patterns, older children and adults are likely to require prolonged application and persistent drilling to bring like improvement.

### RECORDS

Some records are helpful in maintaining clinical

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<sup>4</sup> West, Kennedy, and Carr, The Rehabilitation of Speech, pp. 196-201.

efficiency. For each session with the defective, the worker should write a report of the activities of the period under the headings of Aims, Procedure and Assignment, and place this data in the patient's file.<sup>5</sup> A summary report of work through a week of sessions may be a preferred alternative. This practice regularly followed provides a good record of progress which may tend to become haphazard without this minimum of schematic reference. Ordinarily, a diagnostic sheet will be initiated by the staff member responsible for initial interview, diagnosis, and admission of cases. Together with the case history, where such is taken, the diagnostic sheet and series of progress reports constitute the patient's file.

#### COOPERATION WITH PARENTS

Cooperation with parents of speech-defective children is essential. However, the clinician must be especially careful to avoid an overly-solicitous concern regarding the assistance expected from parents. Further, in accordance with human tendency to value more that which is difficult to attain, the parent should bear any inconvenience which may be entailed in visiting the clinic. A clinician should make the fine distinction between sentimentality and sympathetic interest in his approach. Moreover, the aim is for cordial concern rather than imposition.

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<sup>5</sup> See Example 1, p. 17.

## OTHER TREATMENT SOMETIMES MORE ESSENTIAL

Remedial work is sometimes unwise. We must keep in mind that an occasional case may be referred to the clinic for an obvious speech defect that is only one symptom of a pathological condition that requires medical or psychiatric treatment preliminary to any attempt at satisfactory speech therapy. Where a definite neurosis or speech-impairing physical abnormality accompanies a specific defect, efforts to correct the speech problem should probably be postponed until therapy has overcome the other disorder. A thorough consideration of such a case by the clinician in collaboration with the clinical member making initial diagnoses should eliminate the rejection of the defective whose neurosis is caused primarily by his speech disorder.

## Example 1

PROGRESS REPORTName of case Jimmy YeatsNature of defect ClutteringDate of this report May 21, 1946Aims: 1. To increase his self-confidence or pride.

2. To strengthen his phonetic concept of the  
correct individual speech sounds as they occur in  
words.

Procedure: Discussed books he was reading, which are  
somewhat advanced for his age; permitted him to describe  
his fast ascent of a steep trail in Yosemite Park;  
implied a great deal of confidence in his climbing  
ability. After subject developed some enthusiasm of  
expression, clinician requested that he repeat slowly  
some sentences he had spoken. Used hyper-articulation.

Assignment: To read three pages from his elementary grade  
six reader, saying each word distinctly and repeating to  
correct slighted and omitted sounds. To ask his mother  
to insist on good speech during one meal each day.

Additional remarks (including observable results, recommendations, and data to be added to case history):

Subject is able to produce correctly and rapidly all  
speech sounds when he tries consciously to speak very  
carefully. For many words, he must be slowed down.

D. Pickering  
Clinician

PART II  
CORRECTIVE TECHNIQUES

SECTION I  
CORRECTION OF ARTICULATION DISORDERS

NATURE OF DISORDERS

Several classifications of articulatory defects have been variously indexed. The most predominantly used terms include substitution, voicing error, distortion, slighting, and omission. It is the opinion of the author that the three terms, substitution, distortion and omission may be validly construed to be mutually exclusive and all-inclusive of defects of articulation. Further categorizing amounts to refining definitions within the scope of these three types of articulatory faults.

For purposes of this study, it is sufficient to note briefly that these defects are to be regarded as such only in the failure of the habitual articulation of a person to be deemed normal by those with whom he associates. The fact of defective articulation is dependent on group standards of dialect.

Articulatory defects are supposed in this dissertation to be substitution, distortion, or omission of one or more of the forty speech sounds of standard American speech. For a comprehensive discussion of phonetic understanding of these sounds, attention is invited to Fairbanks' Voice and

Articulation Drillbook (Introductory Section and Chapter I).

## CAUSAL FACTORS

Speech experts seem to have learned the wisdom of avoiding dogmatic classification of defects according to pathological factors. The best studies suggest a variety of tentative causal factors basic to almost any specific disorder of speech. Certain broad conclusions may be found in several researches with convincing consistency. There is much evidence to indicate a positive relation between motor ability and speech ability.<sup>1</sup> Failure to develop cerebral dominance in motor coordination will make for basically poor muscular coordination. Illnesses with high fever in infancy may result in damaged cortical areas, motor and/or associational,<sup>2</sup> and can upset the delicate neuromuscular synergy essential for precise articulation.<sup>3</sup> Highly specialized impairments affecting speech include post-diphtheric paralysis of the velum, and paralysis of the hypoglossal nerve to the tongue.

Other organic causes frequently listed include: native deficiency in the neural centers essential for speech, clear-cut cases of glandular deficiency such as cretinism,

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<sup>1</sup> B. L. Wellman, I. N. Case, I. G. Mengert, and D. E. Bradbury, "Speech Sounds in Younger Children", University of Iowa Studies in Child Welfare, V, no. 2 (1931).

<sup>2</sup> Mildred F. Berry and Jon Eisenson, The Defective in Speech Part II, Ch. IV.

<sup>3</sup> Isaac Abt, Yearbook of Pediatrics, XL, 155-156, "The convulsive stage of pertussis with all its ...respiratory and cerebral symptoms ...expression of the injurious effect..."  
(see bottom of next page)



and delayed physical development uncomplicated by illness.<sup>4</sup>

Becoming increasingly recognized with its ramifications is the fact that good speech is dependent on good hearing. That a child may hear most ordinary sounds and yet lack greatly in clarity of perception of all those sounds is now known to be true. To further complicate hearing analysis, many hard-of-hearing patterns are mixed. That is, they show perfect reception of low-pitched sounds but total inadequacy for sounds of high frequency. In addition to hearing sounds clearly in order to imitate them, the child must also hear sounds in the critical range of frequencies essential for speech.<sup>5</sup> With improper reception of high-frequency auditory stimuli, essential consonants are lost; and the residue low-frequency sounds are quite deficient for distinct speech.<sup>6,7</sup>

Another hearing anomaly that complicates the picture is

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(footnote 3 continued),....on the respiratory organs and lymphatic and nervous systems. Depending on the degree of toxic impairment.....there develop reparable or irreversible tissue changes." (Note: "pertussis" is whooping-cough)

4 P. Flechsig, Meine Myelogenetische Hirnlehre (as cited in Berry and Eisenson, op. cit., p. 72)

5 Harvey Fletcher, Speech and Hearing. Dr. Fletcher found that the removal of all frequencies above 1000 double vibrations per second resulted in a 60% decrease in intelligibility.

6 Ibid. Sounds most frequently misinterpreted are in order:  $\theta$ ,  $\delta$ , f, v, e, p, u, k, s,  $\alpha$ ,  $\zeta$ , i, n, b,  $\gamma$ .

7 James Carrel, "The Etiology of Sound Substitution Defects", Speech Monographs, IV, (1937). "Poor auditory acuity should always be suspected in the case of sound substitution defect, and the necessity of careful examination cannot be stressed too strongly. Reliance should be placed only upon some type of audiometric examination, and in doubtful cases careful retests should be undertaken."

short auditory memory span resulting likely from imperfection in the central cortical areas for the retention of sounds. In this event, the child finds it impossible to repeat the sound after a short interval of time has elapsed.<sup>8,9</sup>

Slovenly articulation occurs in individuals where no physiological or anatomical causal factor is discernible. Usually such cases are identifiable with other examples of similarly defective articulation, and the cause we infer to be imitation. Poor speech standards within a family may be propagated by the power of imitation.

Other possible causes that may defy easy explanation include such purely psychological conditions as lack of motivation to speech and emotional conflicts that result in refusal to speak or apathy toward speech.

Obviously, oral articulatory organs may have structural defects that contribute to speech ills. The tongue may be too large for a small lower jaw, or it may be flabby or immobile or non-coordinated in muscular response. The frenum which binds it to the floor of the mouth may be too short. Or the vault of the palate may be so high that the tongue cannot make occlusion with it as it must do for (t), (d),

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<sup>8</sup> Virgil A. Anderson, "The Auditory Memory Span for Speech Sounds", Speech Monographs, V, 115-129 (1938).

<sup>9</sup> L. M. Terman and M. A. Merrill, Revised Stanford-Binet Scale. Auditory memory span increases with age; a child of three years should be able to repeat a twelve-syllable sentence; a child of eight, a sixteen-syllable sentence; a child of eleven, a twenty-syllable sentence; and the average adult a twenty-four syllable sentence.

(n), (l), (j), (S), etc. The teeth may be so irregular or badly occluded as to distort the articulation of many fricative and plosive sounds.<sup>10</sup> However, obvious structural defects do not invariably bring about the defective speech. Anatomic anomalies are often overcome while less obvious factors remain the true cause.

#### PRE-REQUISITES IN CASES WITH ORGANIC CAUSES

Orthodontal treatment, including surgery and displacement of certain structures; physiotherapy for some cases of paralysis; and hearing aids for the hard-of-hearing are all potentially important in the therapy of some articulation disorders. The correctionist should be alert for these possibly major aids.

#### PRE-REQUISITES IN CASES WITH FUNCTIONAL CAUSES

Eliminating functional causes is primarily a mental hygiene problem. Like the plans of a persevering missionary, psychological plans for overcoming functional causes may require time and patience. In cases where the manifestation of maladjustment is more severe than the speech defect in other symptoms, referral for psychiatric consultation may be advisable. We should remember, however, that poor speech per se can sometimes aggravate a neurotic tendency.

Since the comparatively brief clinical treatment may be fully counteracted by unfavorable home and family conditions, a planned program of home adjustment likely will

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<sup>10</sup> Berry and Eisenson, op. cit., pp. 74-75.

be in order. Depending on the tact and perspicacity of the clinician and the circumstances and attitudes of the other individuals concerned, such a program can be successful.

In the opinion of the author, a good "lever" for incentive to remedy poor articulation is marked confidence of the person in some everyday activities. The defective should be helped to develop confidence, or genuine pride, in his efforts with a hobby or daily chore. Correctionists and parents should cooperate in simulating such confidence in the defective until they really feel it. The germ of confidence can expand itself to build wholesome desire for better speech.

Overcoming emotional conflicts with speech-disturbing symptoms, such as negativism, is discussed in some detail in Section II of this part of this treatise.

#### SEQUENCE OF SOUNDS

Because of their relative order of normal development and close phonetic similarity, it is recommended that defective consonants be treated in approximately this order:

- |        |     |     |            |                 |
|--------|-----|-----|------------|-----------------|
| 1. (p) | (b) | (m) | 5. (h)     | 8. (l)          |
| 2. (t) | (d) | (n) | 6. (k) (g) | 9. (ʃ) (ʒ) (tʃ) |
| 3. (f) | (v) |     | 7. (r)     | 10. (s) (z)     |
| 4. (w) | (ʌ) |     |            |                 |

Several authorities state it is usually practicable to proceed with treatment of defective sounds in the order of their development in the child learning to speak.

The order of development is about as follows:

1. (ə)	6. (l)	11. (ou)	16. (ai)	21. (d)	26. (v)	31. (ð)
2. (m)	7. (ε)	12. (u)	17. (w)	22. (k)	27. (f)	32. (ʃ)
3. (b)	8. (æ)	13. (a)	18. (h)	23. (g)	28. (l)	33. (ʒ)
4. (p)	9. (a)	14. (a)	19. (n)	24. (ŋ)	29. (r)	34. (z)
5. (i)	10. (o)	15. (ei)	20. (t)	25. (j)	30. (θ)	35. (s) <sup>11</sup>

The more subtle modifications and combinations of these sounds are developed last.

#### Chart of Normal Development of Consonant Sounds:

3½ years:	(b), (p), (m), (w), (h)
4½ years:	(d), (t), (n), (g), (k), (ŋ), (j)
5½ years:	(f)
6½ years:	(v), (ð), (ʒ), (ʃ), (l)
7½ years:	(z), (s), (r), (θ), (hw) <sup>12</sup>

#### DISCRIMINATION

The defective must learn effective discrimination. Regardless of the specific nature of the defect or the determined causes, ability of the individual to discriminate between his incorrect sound and the correct sound is basic to successful treatment. This entails consistent recognition of his particular phonetic deviation, or deviations, in speech production by himself and others. For some, this may amount to mere examination exercise to learn that the individual has adequately developed facility for discrimination. In other cases, extensive work to achieve discrimination is needed. Use of phonograph recording or some

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<sup>11</sup> West, Kennedy and Carr, The Rehabilitation of Speech  
p. 34.

<sup>12</sup> Berry and Eisenson, Op. cit., p. 370, (from Irene Pool, "The Genetic Development of the Articulation of Consonant Sounds", Doctoral Dissertation, University of Michigan, 1934, p. 60.)

other play-back recorder may be of considerable assistance in achieving discrimination ability.

To test discrimination ability, the correctionist may speak a word with the error-sound four or five times, either with correct pronunciation in all but one, or with the error in all but one; requiring the student to identify the one error or the one correct pronunciation in the series.<sup>13</sup> The student may immediately imitate the clinician's error as soon as he has learned to identify it. He may imitate his own error whenever it occurs, exaggerating it. If the patient cannot differentiate between the correct and incorrect sounds, continuation of varied exercises is recommended. We may well keep in mind the counsel on behalf of patience that the proof of maturation comes suddenly and without advance warning.

According to Van Riper, "It may be said with the utmost emphasis that no teacher should attempt to get a child to try to make a new speech sound without first giving him systematic ear training."<sup>14</sup>

#### EXPLORATORY STIMULATION

To teach new speech sound patterns use exploratory stimulation. Survey of several reference works leads one to believe that the one paramount procedure commonly advo-

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<sup>13</sup> For other exercises to teach the defective to recognize his defects of articulation, see Van Riper, Speech Correction, pp. 211-212.

<sup>14</sup> Ibid., p. 224.

cated by authorities in speech correction is stimulation. Some construe it to be primarily applicable only in the limited sense of auditory stimulation, involving a repetitive, rather systematic barrage by the clinician of vocalized sound units to be rejected or acquired by the subject. Most workers in the field construe stimulation to require an integral visual factor that is linked almost inseparably to the auditory. Still other experts emphasize that techniques of moto-kinaesthetic stimulation must be superimposed on the auditory and visual to achieve good results with young children especially. Probably most people who have had experience in corrective work incline to accept a practical combination, believing that simultaneous stimulation of the three main projection areas, auditory, visual and kinesthetic, is generally most effective in concept formation. It is with the combination principle that this paper is concerned.

Since the auditory factor is the one of which we are ordinarily most conscious, we may initially employ simple auditory stimulation, particularly with adults, and obtain desired responses without further exploration. Such procedure in its first clinical phase consists of slow and distinct correct articulation of words containing the defective sounds. After repeating four or five such words five or six times, the clinician asks the pupil to repeat

one or two of them after him. If the attempt is successful, this approach should be extended to many other words to further establish the desired pattern. Thereby, an intermediate stage of improvement is attained without unnecessary probing for phonetic analysis and synthesis of isolated sounds. Before this approach should be discarded as a failure several stimulation series should be attempted.

In order to increase attention to stimulation, the clinician may find that for children an integrated and audio-visual approach is necessary, requiring continuous supplementing of speech by pictures or readily perceivable images.

If direct word stimulation does fail, the usual sequence of treatment should be undertaken beginning with stimulation to obtain the correct sound in isolation. If simple auditory stimulation fails to produce the correct sound, attempts should be made to achieve by modification of other sounds, by phonetic placement and other techniques to teach direction and timing of speech movement. The latter techniques entail considerable visual and motokinaesthetic stimulation to supplement the auditory.

#### STIMULATION TECHNIQUE

The correctionist strives for high-fidelity stimulation technique. In articulation disorders especially, the clinician is required to provide examples of desired speech sounds. Perhaps it is overly obvious to restate that the



demonstrated phonetic pattern should be quite correct unless it is deliberately incorrect, but in the opinion of the writer, it is highly in order to warn the clinician against passive, lackadaisical demonstration speech in session with a case. On occasion, an exceedingly quiet manner may be conducive to desired relaxation, but the alert clinician will permit no doubt in the mind of his subject that he is keenly aware of the result wanted, and that he is actively putting forth exemplary samples.

In this connection, successful correctionists emphasize the special merits of vivid exaggeration of the observable aspects of sound units. For example, in demonstrating the sound of (f) the upper incisors may be brought plainly into view covering the retracted lower lip. Most sounds can be greatly enhanced in demonstrative value with supplementing of auditory perception by visual perception. Frequently, gratifying results are obtained by simple pantomime involving familiar gesture accompanied by the sound. For example, the (S) sound is very likely to be given more associational value in the mind of the subject if the clinician demonstrates with the common expression signifying that hushing is wanted, placing an index finger perpendicular to the protruded and slightly parted lips and emitting the usual (S) sound. Pretending to be a bee or an airplane and superimposing on the production of an

intense (z) sound the animation of outstretched arms and swaying upper body may prompt a desired (z) by the pupil. Other specific techniques will be discussed in detail in connection with specific problems.

#### MOTIVATION OF CHILDREN

Speech games and simple stories are important in promoting progress with children.<sup>15</sup> These may be mere acting-out of the simplest sentences, e.g., "Row, row, row my boat", "Jack jump over the candle stick", "This is the way we wash our clothes", "Fly, fly away", "Flies in the buttermilk, shoo, shoo, shoo", and others as devised to suit the needs of the case. Of course, a modicum of imagination is essential to provide color of gestures and vocal inflexion that will stir the child to eager mimicry. This device is often excellent for gaining cooperation of the individual who is easily distracted from attention to more routine treatment.

Working with two or more defectives who have similar disorders is particularly conducive to speech games. In the group situation, games are likely to develop spontaneously,

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<sup>15</sup> For helpful guide materials, the following references are recommended:

M. F. Berry and J. Eisenson, "Testing the Child's Vocabulary of Sounds" (Appendix III in The Defective in Speech);

Rodney Bennett, The Play Way of Speech Training;  
Nemoy and Davis, "Presentation and Practice Material for Each of the Consonant Sounds" (Part III in their Correction of Defective Consonant Sounds).

with the clinician guiding the speech responses to aid improvement. For example, wholesome enthusiasm may be roused by the guessing game in which members of the group take turns being "it". The one who is "it" says, "I am thinking of a word (for the color of somebody's sweater or the name of a farm animal, etc.)". The others guess the word, and the first one to guess three words correctly becomes "it". Of course, the words are supposed to contain sounds being learned by someone in the group. With such participation, normally alert individuals from four to twelve years of age develop active attention among themselves.

#### MODIFICATION OF OTHER SOUNDS

This method involves modification of other sounds of speech or imitation of noises to help produce the correct sound in isolation. The student is asked to make a certain sound and hold it for a short period; then to move the tongue or lips or jaws in a definite manner intended to change the sound to approximate closely the desired sound.

To illustrate, a sound closely resembling a combination of  $f$  and  $\theta$  is sometimes substituted for  $f$ . It may be observed while the subject is producing this  $f$  that there is a slight elevation of the tip of the tongue. A clearly defined  $\theta$  is substituted for  $f$  when the lower lip is, at the same time, too greatly relaxed.

Where such a defect is observed, Nemoj and Davis

suggest that development of f by analogy with h, will in most cases eliminate the tendency toward elevation of the tip of the tongue. Their method prescribes having the pupil produce h and glide into the position for f. If this method is not successful, they suggest inserting a tooth pick between the tip of the tongue and the upper teeth while f is being attempted. If the lower lip is too greatly relaxed, press it gently against the teeth.

Analogous sets of sounds may be used to great advantage in improving the moto-kinesthetic perception of most sounds being learned. In the development of r, elevation of the tongue tip may be secured by analogy with t, d, n, and l. Practice of drill material using various vowels in nonsense syllable sequence, i.e., tah, dah, nah, lah, rah, can be quite helpful.

If difficulty is encountered in securing sufficient vibration of the tip of the tongue, r may be developed from  $\delta$ . In this approach, the subject should be directed to sound  $\delta$ , and while prolonging the sound, to draw the tip of his tongue slowly back and slightly up toward the teeth-ridge.<sup>16</sup>

Frequently employed is the method of modifying  $\theta$  or

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<sup>16</sup> Elizabeth M. Nemoj and Serena F. Davis, Correction of Defective Consonant Sounds. This acquaints the worker with detailed suggestions for correction of each of the consonants. Particularly noteworthy in this reference is the "series of well-graded cumulative and non-cumulative habit formation syllable, word and connected speech drills in a motivated form".

t in production of s. This entails simply withdrawing the tongue and closing the teeth while attempting to continue the θ or t sound.

#### PHONETIC PLACEMENT METHODS

To supplement stimulation techniques, the clinician will find it generally helpful to rely on diagrams and descriptions of the speech sounds in texts by Nemoj and Davis,<sup>17</sup> West, Kennedy, and Carr,<sup>18</sup> and Koepp-Baker.<sup>19</sup> Study of these texts will help the correctionist in giving the defective a clear idea of direction, placement and timing of tongue, jaw and lips. His comprehension of sounds to be corrected may be aided further by practising sounds made correctly and illustrating them with diagrams and pictures.

Mrs. Edna Hill Young, leading experimenter with the Moto-Kinaesthetic Method, believes that isolated speech sounds are not to be desired; the child must learn the sequences which are involved in actual speaking.

Professor Hahn cites as a typical example of word teaching by this method the word "foot" with the initial sound sequence of fu. By gently approximating the jaws of the child, pressing the lower lip slightly against the upper teeth and bringing the jaw down quickly, the sound

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<sup>17</sup> Nemoj and Davis, op. cit., pp. 30-37. (pp. 67-70)  
<sup>18</sup> West, Kennedy, and Carr, The Rehabilitation of Speech,  
<sup>19</sup> H. Koepp-Baker, Handbook of Clinical Speech, II, 345-52.

sequence was emitted. At the same time, the sound was being said by the trainer. Before and after the attempt at sound reproduction, the child's foot was touched and brought to his attention. The final consonant was ignored until the child had mastered the initial sound sequence.

"The Moto-Kinaesthetic Method may then be described briefly: in teaching the child to talk, one kinaesthetically teaches first, the place of movement, second, the form of movement, third, the direction of movement, fourth, the timing of movement with stress on the importance of promptness of release, and fifth, the degree of pressure."<sup>20</sup>

The author inclines to believe that the basic worth of this method is in the attention-holding effected by manipulation and associated pantomimic actions. Elements of recognized audio-visual stimulation procedures are present to diminish the strength of claims of distinct success for moto-kinaesthetic methods. Certainly it can serve as a valuable supplement, even for correctionists without much special training in such techniques expounded in the literature.

#### PSYCHOLOGICAL VALUE OF NONSENSE SYLLABLES

In those usual cases where stimulation by whole words does not bring forth correct utterance of the defective sound by the subject, experienced correctionists advocate, following training and discrimination in production of the

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<sup>20</sup> Eugene F. Hahn, "A Discussion of the Moto-Kinaesthetic Method of Speech Correction", Quarterly Journal of Speech (October, 1939).

sound in isolation, the use of nonsense syllables.<sup>21</sup>

The clinical assistant will be wise to follow this method faithfully in cases of sound substitution because it is perhaps the only feasible way of removing a defective sound from the word entities where the person's concept and utterance of the sound are well established together in an incorrect pattern.<sup>22</sup>

Although the nonsense combinations may be less important for the child who has not acquired a sound or omits it, we should generally adhere to the principle that "words must be built out of meaningless acoustic combinations; when they are ruggedly built, they must then be invested with meaning".

#### SUGGESTED DRILL TECHNIQUE

A practical drill technique for using nonsense syllables involves combining the various vowels with the sound being learned, in the case of defective consonants; or randomly

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<sup>21</sup> Grant Fairbanks, Voice and Articulation Drillbook includes printed drill materials to guide systematic use of nonsense syllables with all ordinary speech sounds. Other helpful arrangements of nonsense sound combinations are found in Nemoy and Davis, op. cit., passim.

<sup>22</sup> West, Kennedy, and Carr, op. cit., pp. 36-37. "The teacher must remember that the sound, the concept, and the utterance of the word are all of one piece---to emphasize one aspect is to emphasize them all. Since the child's utterance of the word...involves a defective sound, the teacher's stressing...own pronunciation of the word only reinforces the defective sound by reinforcing the whole linguistic picture of which the child's utterance is but a part."  
Van Riper states that possibly most important principle in speech correction is to strengthen sounds sans words.

selected consonants with the sound being learned in the case of defective vowels. As demonstrated in various drill materials, the new sound should be combined in initial, medial and final positions relative to the phoneme with which it is combined. For example, when a lisper has progressed to this phase of relearning, he should be drilled thoroughly with such sequences as these: u-u-s, u-s, us, u-s-s-u, u-s-u, usu, s-s-u, s-u, su. Incorporate use of the sound in isolation, prolongation, repetition, exaggeration, shortening initiation time, simultaneous talking and writing as desired.

#### ESTABLISHING THE CORRECT SOUND

The following extracts of instructions for establishing the correct sound in the treatment of sound substitution defects are quoted from The Defective in Speech,<sup>23</sup> recommended by the authors as applicable in the re-education of the baby-talker:

".....to be sure that the child or adult properly relates the moto-kinaesthetic cues to the correct acoustic effects it is necessary to work on the identification of all sounds and particularly of the sounds which are faulty. He must be able to pick out not only the defective sound but also the component in the motor sequence which was faulty. Finally, he must be able, at will, to produce both the defective and the correct sounds. Since the ordinary configurational complex of connected sounds is too difficult for him, the configuration must be broken down into simple units.

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<sup>23</sup> Berry and Eisenson, pp. 91-101. Parallel procedures are applicable in dealing with defects of distortion or omission.



In relearning l, for instance, follow these steps:

A. Does he recognize the sound alone?

B. Can he pick out the "w" substitute for "l" when the instructor uses both types?

1. w|əl (l|t|l)
2. ɔwe|z (ɔlwe|z)
3. əw| (əl|), etc.

C. Can he recognize the faulty component in the "w" substitute? Try all possible adjustments from "w" to "l", as a bilabial "w", lingua-dental "l", lingua-alveolar "l".

D. Reinforce his moto-kinaesthetic-acoustic pattern for "l" by repeating it many times in isolation, and then shift to the sound in simple words. Do it slowly, allowing time after each stimulus for the subject to go over the sequence of movements but without sound. Remember that a child does not imitate directly. The sequence of action must be first in his own repertoire. Give him time to make sure it is there before asking him to make the sound aloud.<sup>24</sup>

1. In sounding l, do not make a dark l or two sounds (l ). The tongue should be high and convex, the tip and blade lightly pressed against the alveolar ridges.

2.	(l-a)	(l-a)	(l-a)
	(a-l)	(a-l)	(a-l)
	(a-l-a)	(a-l-a)	(a-l-a)

3.	all	law	allah
	fell	left	fellow

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<sup>24</sup> D. McCarthy, The Language Development of the Pre-School Child, pp. 136-137.

4. Repeat these exercises but vary the pitch and intensity.

E. If the child is old enough to identify the sound in written words and phrases, he will enjoy these games:

1. In captions beneath pictures have him identify the "l" sound in the word and point to the object in the picture represented by the word.
2. Speak words slowly to him; have him write the words underlining all "l" sounds and indicating the length of "l" by using a colon (:) to indicate long duration. Occasionally substitute the incorrect sound "w" for the sound. Such errors should be noted and encircled.
3. Other methods of identifying sounds may be used such as raising the hand, tapping, calling out, etc.

F. Since many children in infantile perseveration omit all final sounds the acoustic training must be prolonged for them and stress laid on the end of the syllable and of the word.

#### SPECIAL SUGGESTIONS

A. Substitution of (w) for (l). Typical sentence:

"I wan a wawipop." (I want a lollypop.)

1. Retract the lips forcibly, holding them back with the fingers, if necessary.
2. If the palatal arch is abnormally high, ask the child to place the tongue-tip against the teeth.
3. If the upper jaw is overshot, try making the (l) by buckling the dorsum of the tongue.
4. Raise the tongue for (n); slowly lower the tongue as you hum the (n).

B. Substitution of (j) for (l). Typical sentence:

"I saw a pretty yady!" (I saw a pretty lady.)

1. Prolong the (j) sound and while doing it, force the tip and blade of the tongue against the alveolar ridges. Generally this action will force the mid-section of the tongue down which has been raised for (j).

C. Substitution of (t) for (k) and (d) for (g). These sounds are treated together since (d) and (g) are the voiced analogues respectively of (t) and (k). Typical sentence: "Dib me my tap." (Give me my cap.)

1. Anchor the tongue-tip behind the lower teeth, holding it down if necessary with a tongue depressor. Buckle the back of the tongue.
2. Alternate the raising of the back and front of the tongue in a rocking movement: k-t; k-t; etc.
3. Imitate the cawing of a crow (caw-caw), train wheels going over the rails (t-k-t-k; k-t-k-t-k-t) and other sounds in nature, such as imitation of the owl (to-whit, to-whoo !); cluck like the hen as she flies off the nest after laying an egg (k-k-k-k-k).
4. Listen to the kitchen clock, tick-tock; tick-tock.
5. Recite a verse containing many (t) and (k) sounds.

D. Substitutions of (p) for (f) and (b) for (v).

Typical sentence: "I'll pight ip you don't leab me alone."

(I'll fight if you don't leave me alone.)

1. While the child is saying (a:), place his lower lip under the edge of the upper teeth.
2. If the lips are retracted as in smiling, it will be impossible for the child to say (b) for (v).

3. Say slowly, "fe-fi-fo-fum", placing the lip under the teeth before beginning each syllable.

E. Substitution of the glottal stop for (t) and (l).

This substitution occurs most frequently when the sound occupies a middle or final position in the word. Typical sentence: "She is a wi-a ger-a." (She is a little girl.)

1. Relax the muscles of the throat. Open the mouth for (a:) (as in "father"); and making sure that the back-tongue is down, slowly raise the front-tongue to the alveolar ridges. If the contact is light, an (l) should result; if hard, the tongue should be in a position for the (t) sound. In making (l) the child should feel the lateral emission of the breath stream.
2. After he has thoroughly mastered the sound in its initial position in the syllable, work on the sound in the medial position, as in "sitting, getting, letter, silly, filling, little, kettle," etc.

F. Substitution of (w) for (r). Typical sentence:

"She has a wed wose." (She has a red rose.)

1. The (r) sound is extremely difficult to master and should be attempted only after the easier sounds have been learned.
2. Unround the lips forcibly; exaggerate the retraction.
3. Intone (a:) (as in "father"); raise the tongue tip and blade, cupping the tongue toward the palate but not touching the palate.
4. While saying (l) pull the lower jaw down slowly.

G. Substitution of (f) for (θ) and (v) for (ð).

Typical sentence: "I fink vats right." (I think that's right.)

1. Pucker the lips slightly and let the tip of the tongue show between the upper and lower teeth. The contact of teeth against tongue should be very light.
2. Pant as a dog does, with the mouth open and tongue extended beyond the teeth. Slowly raise the lower jaw until the fricative sound of ( $\theta$ ) appears.

H. Substitution of ( $\theta$ ) for (s) and ( $\int$ ). Typical sentence: "The ith my thither." (She is my sister.)<sup>25</sup>

1. Begin with ( $\theta$ ); as the breath stream is continued, pull the tongue back so that the tip is clear of the central incisors; continue retracting the tongue until the ( $\int$ ) position is reached.
2. If the child persists in placing the tip against the teeth, push it back with the tongue depressor and hold the tongue depressor in position as he says (s).
3. For (s), the sides of the tongue must be raised from the ( $\int$ ) position and cupped so that a central groove is formed.

I. Substitution of (t) for ( $t\int$ ) and (d) for ( $d\int$ ).

Typical sentence: "Dackie fed the tickie." (Jackie fed the chickie.)

1. Place the tongue for (t); quickly pucker the lips and explode the (t).
2. Imitate a train picking up speed.
3. Sneeze forcibly.

#### COMPENSATORY MOVEMENTS

Training in compensatory movement may improve speech

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<sup>25</sup> For detailed suggestions concerning correction of the inter-dental lisp, the lateral s, and the palatal fricative s, see Virgil A. Anderson, "The Production of S", Western Speech, (March, 1940).

of the anatomically defective. Van Riper recommends these steps:

1. Make a phonetic analysis in terms of the type of sound to be produced.<sup>26</sup>

2. Consider what structures the subject might possibly use in the mechanics of the sound production. For example, in case of an open bite, a compensatory movement is made by bringing the lower lip into such position that the upper incisors rest lightly on its inner border. The necessary fricative noise for (s) is made as the air is driven out between the teeth and lip.

3. Follow a thorough course for the student in ear training, stimulation and discrimination.

4. Through manipulation, phonetic diagrams, mirror work, imitation and random activity, try to get the student to produce the correct sound.

5. Once the sound is achieved, "freeze" all distracting motions until the student prolongs, repeats and uses the desired sound in nonsense syllables a great many times

6. Regard exaggerated movements as merely the gross, initial learning phase, likely to be refined as the pattern can be initiated.

7. Increase the speed with which the compensatory

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<sup>26</sup> West, Kennedy and Carr, op. cit., p. 68 and pp. 208-239.

performance pattern can be initiated.

8. Follow through to change the transition movements, working for new and quick patterns of change from one speech sound to another.<sup>27</sup>

#### RECONFIGURATION TECHNIQUES

Reconfiguration techniques may be particularly helpful to supplement nonsense syllable practice with the purpose of teaching the individual that words are made up of sound sequences and that these sequences can be modified without losing the unity of the word. For example, in the case of the lisper, reconfiguring techniques might follow about this sequence:

1. The student reads, narrates and converses with the teacher, substituting the sound of (b) for that of (f) whenever the latter occurs in the initial position. He reads, for example, that "Wild ducks bly bar north in the summer."

2. Following gradual approach principle, the student substitutes his new sound (s) for other sounds, but not for the error. Thus: "Wild s-s-sucks fly far north in the summer."

3. The student substitutes another sound for the s in the same material. Thus; "Wild duckm fly far north in the mummer."

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<sup>27</sup> C. Van Riper, Speech Correction Principles and Methods, pp. 218-219.

4. The student omits the (s) in words beginning with it. Thus: "Wild ducks fly far north in the -ummer."

5. The student substitutes his new sound for the (s). "Wild ducks-s-s fly far north in the s-s-summer."<sup>28</sup>

#### DEFINITE ASSIGNMENTS

Making habitual the use of the correct sounds requires definite assignments. These should be appropriate to the individual's ability and environment. The clinician should ask for a report the next day. A possible assignment for a child might be, "Ask your mother to listen to your story of all that you did today in school and to tell you if you said any word wrong." An adult, for instance, who has difficulty with final fricative sounds, might be assigned, "Emphasize and prolong all final (z) sounds in your table conversation the next time you dine with someone; and report on your success".

#### CHECKING DEVICES AND PENALTIES

In the small group situation, with either children or adults, the simple device of tallying on a blackboard or plainly visible paper the comparative results of attempts at correct production of given exercises is usually con-

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<sup>28</sup> Van Riper defends this procedure, "....such techniques may seem far too laborious and detailed...but careful and thorough training will produce....permanent freedom from error. ....sketchy training will enable a speech defective to make the correct sound....when he watches himself carefully, but this is far from the goal...."



ducive to furthering competitive diligence.<sup>29</sup>

"Checking devices and penalties should be simple, vivid, and good natured."<sup>30</sup> Let the pupil choose his own penalties before he makes the speech attempt. For example: clasp hands behind head, raise one foot and wiggle it, step into the wastebasket, bend over and grasp foot, close one eye, etc.

#### GOOD SPEECH SITUATIONS

Nucleus situations may be used in place of insistence on too constant vigilance. The clinician may give the extended assignment requiring careful speech in certain situations, such as at the dinner table. Good-natured emphasis on good speech in designated situations tends to aid in spreading improvement to other speech situations.

#### NEGATIVE PRACTICE

The deliberate use of the incorrect sound helps emphasize the distinction between correct and incorrect sounds. It is important to remember never to ask the student to use the error until he can produce the correct sound whenever asked to do so; and make the individual

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<sup>29</sup> Charlotte G. Wells, "Improving the Speech of the Cleft Palate Child", Journal of Speech Disorders, X, no. 2, 162 (June, 1945). Some interesting and effective group and individual activities for improving articulation are well explained in this reference. Despite the specialized implication of the title, much of the material in this article is appropriate for general use.

<sup>30</sup> Van Riper, op. cit., p. 258.

aware of the reasons for his use of the incorrect sound.<sup>31</sup>

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31 Believing that the psychological principles of learning account for making and unmaking of habits, Dr. Knight Dunlap has formulated these two hypotheses, which he terms the Alpha hypothesis and Beta hypothesis respectively: "A response to a given stimulus definitely increases the probability that on the recurrence of the same...stimulus pattern, the same...response will occur."\*\*The response in itself has no effect on the future probability of the same stimulus pattern producing the same response."\*\*

Dunlap's hypothesis shows the possible negative effect in repetition. Negative practice may be used to abolish a habit of response already formed. The factors which assure success when the individual makes response to a stimulus other than the response that he has in mind are perception, thinking and feeling. He perceives his speech as it sounds, thinks of the goal of corrected speech sounds, weighs past successes and failures, and desires to achieve success.

The theory advocates voluntary copying of the specific defect while keeping clearly in mind that this is not the action to be followed in the future. "Perception, thought and feeling must be directed toward the future response and not toward the present habit."\*\*\*

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\* Knight Dunlap, "A Revision of the Fundamental Law of Habit Formation", Science, LXVII, 360-62.

\*\* Knight Dunlap, Habits, Their Making and Unmaking, p. 41.

\*\*\* Eugene F. Hahn, Stuttering....., p. 31.

## SECTION II

## TREATMENT OF DELAYED SPEECH

## AGE CRITERIA

The child with delayed speech embodies a problem so diverse in its possible ramifications that no detailed consideration is attempted in this paper. The term "delayed speech" signifies the abnormality of absence of speech in the developing child after the age at which he is usually expected to learn to talk. There is some lack of agreement regarding the age at which concern over the absence of speech is justified. One reference considers the condition abnormal if the child does not begin to speak by twenty-four to thirty months.<sup>1</sup> Another holds that "unless there is a manifest reason for the failure of speech to develop, no concern should be felt if it has not developed by the forty-second month; after this age a child whose speech environment is normal but who has not begun to talk should be regarded as abnormal."<sup>2</sup>

## CAUSES

The possible causes of delayed speech are numerous. Van Riper lists low intelligence, hearing defects, poor coordination, illness during the babbling period, lack of motivation, poor speech standards, emotional shocks, poor

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<sup>1</sup> I. W. Karlin and L. Kennedy, "Delay in the Development of Speech", Journal of Diseases of Children, LI, 1138-49 (1936).  
<sup>2</sup> West, Kennedy, and Carr, The Rehabilitation of Speech, p. 34.

auditory memory span, emotional conflicts, and aphasia.

Because of vagueness or absence of responses, diagnoses of some of these causal factors is exceedingly difficult. For example, before declaring aphasia to be the defect in delayed speech, the clinician must rule out high-frequency deafness and feeble-mindedness.

#### PREVENTION

Nowhere is the adage that "an ounce of prevention is worth a pound of cure" more applicable than in reference to delayed speech resulting from psychological circumstances that might have been improved by parental enlightenment and attention.

Parents are wise to remember that three of the most important determiners of learning are opportunity, guidance and success.<sup>3</sup> If a child is to learn speech, he must meet situations in which its use is demanded; he must have good examples to indicate what is desired; and he must be rewarded by approval or a specifically sought objective upon accomplishment of speech.

Parents or brothers or sisters who monopolize all speaking situations before speech is established in the young child, or who anticipate his wants so thoroughly by providing them before he is motivated to talk, deprive him of opportunity to speak. If the everyday speech of other members of the family is incoherent or slovenly, or if no

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<sup>3</sup> L. F. Shaffer, The Psychology of Adjustment, p. 361.

meaningful speech is ever directed at the child, he is not given guidance. If other members of the family withhold rewards and praise for speech attempts, there is an absence of success to stimulate further attempts.

If parents or other persons of influence present inadequate opportunities, examples and guidance, and approbation for efforts, the likelihood of inadequate speech development is increased.

### NEGATIVISM

"Negativism", as defined by Shaffer, "is the last emotional resort in situations involving restraint, interference or injury, and may persist in later life as a response to inferiority and insecurity."<sup>4</sup>

It is a generally accepted fact that negativistic attitudes are so common among young children that they may be considered normal. Careful studies have found that the peak of incidence of negative behavior in children is at two and a half to three years of age, and that there are decreasing degrees of resistance by older children to ordinary requests. The typical five year old shows little negativism.

Psychologists attribute persistence of negativism in some children to inadequate or unfortunate training. If resistance operates to secure the child what he desires,

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<sup>4</sup> Shaffer, op. cit., p. 185.

to get him out of unpleasant tasks or to make him the center of attention, it will be learned and employed repeatedly.

This resistance, which frequently is the basis of refusal to speak and delayed speech, can rarely be cured by direct stimulation or appeals.

Recommended techniques involve discovery and correction of the fundamental causes of the maladjustment of which negativism is the symptom. The objective is to bring the individual to an understanding of the futility and ineffectiveness of indiscriminate resistance. One simple approach, noted elsewhere in this discourse, entails the clinician's making moderate requests for the individual to perform tasks in accordance with his desires. For example, Van Riper suggests that a stubborn child should be commanded to obtain an ice cream cone. If he refuses to comply, another child present should be instructed to obtain the ice cream cone and eat it in the presence of the recalcitrant one. The theory in this connection is that the initial gains of compliance by the subject will tend to improve cooperation in other situations.

#### BABBLING

Since there is abundant evidence that the first speech attempts seem to come from noises of contentment or relief, prolonged illness during this babbling period of beginning speech is very likely to be a deterrent to normal speech

development. In such cases, an effective approach to encouraging speech may be a revival of the important babbling period. This entails random vocal play, much repetition of syllables such as many parents coo to their infants. Several minutes each day of such exercising, when the child is content and relaxed, should soon develop some consistent responses upon which meaningful speech can eventually be developed.

"Even six-year old children with a history of early illness and delayed speech," states Van Riper, "should be taught to babble."<sup>5</sup>

#### GENERAL PROCEDURE

Therapeutic procedure requires determining the cause. When this is possible and if it can be removed, presumably a great step toward correction has been taken.

Often the practical problem of initiating speech therapy is exceedingly difficult, for the excessively dependent delayed speech children are likely to cling to their parents even in the clinic. Even when speech begins to be established, habits of overdependence, such as signs of undue emotionality, temper tantrums, and excessive motor activity may persist to baffle training efforts. When a case is accepted for clinical attention, these become the

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<sup>5</sup> C. Van Riper, Speech Correction Principles and Methods, p. 186.

clinician's problems to share with parents.

In general, after removal or modification of the cause, the correctionist should have as his primary objective the provocation of some consistent response by the subject child. This may be pantomimic activity, gesture language, any fundamental indication of response to which vocalizing activity may be added by continued motivation and stimulation. Initially, only one spoken sound for a given object should be sought at a time. Pictures and games may be used to show usefulness of naming things.

#### SPECIFIC TECHNIQUES

A. Suggested direct stimulation procedures include the following:

1. The verbal barrage.

a. Clinician speaks name of common or especially vivid object, introduced into the situation to add visual and tactile perception to the auditory.

(1) Example: The word "ball" is spoken while a ball is displayed to the pupil.

b. Clinician employs repetition of the spoken word, stressing variously the audible, visible and tactile elements perceivable in the word-object association.

c. Pupil is given opportunity to imitate the instructor in handling the ball and in attempting the verbalizing.

2. Rhythm games.

a. Clinician demonstrates gross, rhythmic movements of arms, legs, hands or head, such as clapping, slapping, pushing, kicking



and stamping, accompanied by vocalized cadence counting.

- b. Imitation of instructor's demonstration with synchronized movements by the group or individual.
- c. Extended sequence of patterns of clapping, slapping, stamping, etc., with special emphasis by instructor on the vocal accompaniment, and with invitations to the pupils to get into the game and say the numbers or jingles.
  - (1) Example: Clap hands on counts of 1, 2, 3, and slap knees on count of 4.
  - (2) For failure to keep in time with the instructor, there should be employed some good-natured penalty such as bending over and locking between the knees.

### 3. Pantomime.

- a. Motions to simulate eating, sleeping, throwing, running and a variety of common activities may be exaggerated to encourage mimicry by the child.
- b. If the child becomes interested and responds by making meaningful gestures, correctionist superimposes simple sounds, preferably those stressing lip activity, such as (p), (b), (m), (f) and (v) combined with neutral vowel ( ) or with ( ).
- c. After initial vocalizing attempts, simple meaningful words may be attempted, introducing appropriate objects, such as parts of the body, to be named.
  - (1) Example: A modified, primary level version of "Alouetta" may be effective ("I will touch you on the head,.....")

### 4. Music.

- a. May sometimes be incorporated with pantomime method to stimulate response.

b. Correctionist sings song with a great deal of rhythm and with some exaggeration of certain "punch" words.

(1) Example: "All around the vinegar jug, the monkey chased the weasel. The monkey pulled out the stopper plug---POP ! goes the weasel".

c. Suggested alternative "musical" approach is by use of the ten-cent store variety of small metal or plastic "hum-a-tones".

(1) Instructor demonstrates with very apparent delight the music-producing possibilities of the instrument, and shows how humming is the secret of joyful success.

(2) The retarded child, who should have a "huma-tone" of his own, is invited to share the fun; or he may be left to his own volition.

B. Suggested indirect stimulation procedures.

1. The "silent diet".

a. This approach involves essentially a complete absence of stimulation directed at the subject; and should be undertaken in a bare room that offers little distraction.

b. Clinician may be engrossed in some task to convey impression of satisfaction with job and indifference to everything else including the subject.<sup>6</sup>

c. If boredom provokes ease to make any attempt at communication, clinician may offer matter-of-fact assistance to stimulate initial sounds or words.

2. The boycott against silence.

a. This method requires parental cooperation in refusal to satisfy wants of child without sounds produced by him. The child must

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<sup>6</sup> Van Riper, op. cit., p. 201. A helpful example of technique.

talk to obtain food, etc.

- b. The parent should provide stimulation appropriately timed, sounding suitable vowel or syllable to encourage the child's response.
- c. Such discipline should be carried out as severely as possible, short of cruelty, to prove the usefulness of vocalizing.
- d. Real attempts at speech should be promptly rewarded by praise and the desired object.

After the child has mastered a beginning vocabulary which he uses consistently<sup>7</sup>, the task becomes one of keeping the words in practical, everyday use, enlarging the vocabulary and improving the articulation standards. The advantage of parental perseverance in this phase cannot be over-emphasized.

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<sup>7</sup> To quote Van Riper: "Once words have been achieved, the child should always be taught to sound them out as well as to speak them as wholes. This is important because the act of integrating sequences of speech sounds is probably one of the most important tools of speech acquisition. Without it, the child is deprived of an important aid in learning new words by himself." (Van Riper, op. cit., p. 206)

## SECTION III

## CORRECTION OF VOICE DISORDERS

## TYPES

Five broadly descriptive categories include all the disorders of voice or phonation:

## A. Disorders of quality

1. Breathiness
2. Harshness
3. Hoarseness or huskiness
4. Throatiness
5. Nasality
6. Denasal quality<sup>1</sup>
7. Metallic quality<sup>1</sup>
8. Muffled quality<sup>1, 2</sup>

## B. Disorders of pitch

1. The voice that is abnormally high
2. The voice that is abnormally low

## C. Disorders of intensity

1. The voice that is too loud
2. The voice that is not loud enough

## D. Functional voicelessness, or aphonia

E. The monotonous voice, including repetitive, defective patterns of pitch, quality, intensity or duration, or

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<sup>1</sup> Grant Fairbanks, Voice and Articulation Drillbook, p. 202  
This author, maintaining that the test of existence of a voice quality disorder is whether or not the quality that is heard is independent of the phonemes, asserts that the so-called metallic, denasal, and muffled quality defects are positively correlated with phonemic deviations, and therefore, that they should be treated as articulatory defects. However, since they are both qualitative and generalized, they are regarded as voice defects in this discussion.

<sup>2</sup> Berry and Eisenson, op. cit., term muffled speech the disorder characteristic of "the mumbler" or "the laller", and treat it as an articulatory disorder.

of any combination of these factors.

### BREATHINESS

According to Anderson,<sup>3</sup> breathiness can usually be traced to an excessive laxness of the muscles of the larynx, which prevents an efficient adjustment of the vocal folds. There is not sufficient muscular activity to bring them close together into the mid-line and unvoiced breath escapes between them. The fault may result from poor speech habits, or it may be traceable to a general physical condition of poor health, excessive fatigue, or glandular disfunction.

Pathological causes may include irregularities on the vibrating edges of the vocal bands. "They may take the form of a growth upon the cord extending out into the glottal space, or of depressions in the edge which leave a small gap even when the bands are closely approximated."<sup>4</sup> These may be merely congenital or developmental variants rather than truly pathological, or they may be gravely pathological---tubercular, syphilitic or tumorous.

In correction of breathiness, Anderson suggests that where technique of relaxation and quiet phonation proves unfruitful, the individual's louder tones and hence very likely his best tones may be used as a basis from which

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<sup>3</sup> Virgil A. Anderson, Training the Speaking Voice, p. 64.

<sup>4</sup> West, Kennedy and Carr, Rehabilitation of Speech, pp.87-88.

to begin the program of training to eliminate breathiness.<sup>5</sup> When the quality of the louder tones has been improved, quieter types of vocalization can be practiced.<sup>6</sup>

Other authorities<sup>7,8</sup> recommend a combination of negative learning with extremes of the faulty quality and complete absence of breathy components of a spoken passage. A suggested approach involves reading in three different ways some simple selections with many (h) sounds:

1. Read the selections accompanying all sounds with a "whisper." Expel the breath forcibly, "wasting" as much of it as possible. This shows the effect of excessive aspiration.

2. In the second reading, go to the other extreme. Omit all "h's"; be sure there is no "whisper" element in any sound.

3. This third time, take "sips of breath" before each phrase, making sure that you still have breath left over after each phrase. Gradually lengthen the grouping of words but at no time exhaust the breath supply in speaking

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<sup>5</sup> D. W. Farnsworth, "High Speed Motion Pictures of the Human Vocal Cords", Bell Laboratories Record, XVIII, No. 7, pp. 203-208. Reported in this article are research studies of vocal folds activity through the medium of high speed motion picture photography that reveals that in the production of loud tones the folds close together more firmly and remain in close contact during a larger part of the vibration cycle than when tones of low intensity are phonated.

<sup>6</sup> Fairbanks cites this gradual loudness reduction drill as especially valuable.

<sup>7</sup> Berry and Eisenson, op. cit., p. 188.

<sup>8</sup> R. C. McCall, Lecture on Corrective Techniques, May 28, 1946.

a phrase or sentence. Chanting or singing may also help teach conversation of breath.

### HARSHNESS

Harshness may be associated with defects of resonance, but is usually traceable to the manner in which the tone is initiated in the larynx. "The physiological basis for this defect is the opposite of that responsible for breathiness. Whereas breathiness results from an adjustment of the vocal cords that is too lax,....harshness results from the vocal folds being drawn too tightly together during phonation. Their free vibration is interfered with and noise elements are added to the vocal tone.<sup>9</sup>

Contributing to this vocal fault is frequently some generalized hypertension of the muscles of the body, nervousness, or restlessness. Some authorities cite laryngeal and pharyngeal "stenoses" as typical physiological bases of harshness and hoarseness. Conditions of stenosis include too tight closure of the glottis or any unnatural constriction of the vocal outlet.<sup>10</sup>

Harshness as it usually is operating should include first the development of proper breathing habits. "If attention is centered in the breathing rather than in the

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<sup>9</sup> Virgil A. Anderson, op. cit., p. 64.  
<sup>10</sup> West, Kennedy and Carr, Rehabilitation of Speech, Included among specific causes of stenosis are 1. hypertonic adductor muscles (often associated with spastic paralysis); 2. chronic hyperplastic laryngitis; 3. moist deposits upon the cords; 4. laryngeal new growths. Refer to page 97 of this reference for detailed discussion of these conditions.

voice-producing mechanism, both the extrinsic and intrinsic muscles of the larynx can be relieved of unnecessary strain. The speaker must remember that vocal force results primarily from increased pressure exerted upon the outgoing breath by the muscles of exhalation and not by forcing the tone from the throat."<sup>11</sup>

Active relaxation which brings control and power as well as ease in phonation must be practiced.

Practice should also be undertaken in the easy initiation of tone without the glottal shock<sup>12</sup> which often accompanies tense, forced utterance. For example, sustain a whispered (a) and gradually add phonation till the tone is of average loudness. Constant drill on the initiation of tones with emphasis on just the right amount of tension should do much to modify an undue amount of harshness.

#### HOARSENESS AND HUSKINESS

Anderson states that both hoarseness and huskiness always suggest the presence of physiological causal factors, a possibility that in every instance should be carefully investigated. Temporary hoarseness or huskiness may indicate temporary conditions in the larynx, such as acute laryngitis resulting from a cold or similar infections of the respiratory tract or from misuse of the voice as in

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<sup>11</sup> V. A. Anderson, op. cit., p. 69.

<sup>12</sup> A momentary "catch" or raspy explosion of the voice observable when a vowel is begun with the throat in a tense strained condition.



yelling or shouting. Similarly, chronic hoarseness or huskiness may be associated with chronic laryngitis, characterized by inflamed or swollen vocal cords. Among the more common causes of this condition are sinusitis, nasal catarrh, dust and other irritants inhaled through the mouth, and prolonged abuse of the voice.

Hoarseness, being most typically the voice of the individual with chronic laryngeal infection or irritation, should have medical examination and treatment as the first corrective step. The speech correctionist should be interested in two phases in re-educating the person with a hoarseness that is traceable to poor voice habits or established organic impairment that permits improvement. The bad habit must be broken and the proper use of the vocal mechanism developed in its place. Negative and positive learning are generally recommended methods to approach habit breaking and redeveloping. Also, vocalization in general should be made as easy and effortless as possible.<sup>13</sup>

#### THROATINESS

Throatiness, a quality denoted by this term for want of more exactly descriptive one, is characterized by the voice that gives the impression of "falling back into the throat", sometimes with a harsh, raspy quality.

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<sup>13</sup> Grant Fairbanks asserts, "...from both acoustical and causal viewpoints hoarseness combines the features of breathiness and harshness. It is subject...to...variables which perpetuate these disorders." Thus, similar corrective exercises may be generally appropriate.

This fault is often associated with inadequate breathing, the fall of the voice at the end of the phrase being coincident with an exhaustion of the breath supply and resulting in the last few tones being forced from the throat with air from relatively empty lungs. Also causal may be some interference with free action of the vocal folds, of which a functional example is the attempt to hold the voice at a pitch level near the lower limits of its range.

Throatiness can be overcome in many cases by the practice with open mouth and throat of easy initiation of voice on a pitch slightly higher than that at which the throatiness appears. An adequate breath supply at all times is important. Here too, the contrast method involving negative learning may be effectively used. Exaggerated throatiness may be practiced alternately with exaggerated "forward placement", in which the perceptible zone of greatest resonance changes from pharynx and rear of oral cavity to the forward part of the oral resonance chamber. Hyperactive lip and jaw movements facilitate the "forward placement". From practice of contrasts, production is directed toward the desired modification somewhere between the extremes.

#### METALLIC

The metallic voice is described by some authorities<sup>14</sup> as the voice lacking vibrato. It is generally recognized

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<sup>14</sup> Virgil A. Anderson, op. cit., p. 71.

that a very slight vibrato is an essential of a pleasant and effective voice. Absence of this quality seems to be usually associated with a bodily condition of high nervous tension and excessive muscle strain.

Overcoming the metallic quality of voice, or absence of vibrato, is somewhat abstrusely correlated by some authorities with development of emotional responsiveness to the finer meanings of words spoken.<sup>15</sup> Like harshness, with which it is often associated, it should be improved by exercises to overcome any hypertension of the vocal mechanism. Again, vocalization should be made as easy as possible. In recommending that this disorder be treated frankly as articulatory rather than as a disorder of voice quality, Fairbanks declares that the front vowels<sup>16</sup> should have special attention. This is based on his supposition that the metallic quality is associated with tendency toward vowels higher in tongue position.

#### MUFFLED QUALITY

The muffled voice is usually the obvious result of sluggish functioning of the articulatory organs, more particularly of inadequate clearance of the forward vocal passage by the tongue, lips and lower jaw.<sup>17</sup> It may be a

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<sup>15</sup> V. A. Anderson, op. cit., and F. W. Orr, Voice for Speech.

<sup>16</sup> Front vowels include: (i), (æ), (ɪ), (ɛ) and (e).

<sup>17</sup> West, Kennedy and Carr, The Rehabilitation of Speech, "Back of it (general sluggishness of response) may be endocrinopathy, apathetic feeble-mindedness, general nervous and physical debility, emotional repressions..."

symptom of closed nasal passage when the nasal sounds are produced with approximately constant loudness and consistently muffled.

Muffled quality, which invariably involves slighting of plosive consonants and neutralization of vowels,<sup>18</sup> may well be treated as an articulatory disorder requiring careful diagnosis of the particular deviations. In cases of an immobile tongue produced by some irreparable pathological or congenital weakness, re-education may be inadvisable.

".....the cause of.....slovenly speech (mumbling indistinctness) is not.....even largely caused by imitation....In a recent 5-year study college students placed in corrective sections of speech because of articulatory defects, it was found that:

(1) the majority of these students were in the lowest one-third of their class in scholastic aptitude (as measured by the test of the American Council on Education) and in academic achievement;

(2) over one-third of the students showed some severe emotional maladjustment as measured by the Bell Inventory and private interviews;

(3) the majority were below average in pitch discrimination and tonal memory (as measured by the Seashore Tests of Musical Talent);

(4) nearly three-fifths of the group were below average in motor coordination as measured by Whipple's Tracing Board, Whipple's Steadiness Tester, and the Tapping Test."<sup>19</sup>

Fundamentally, an extended period of coordination of both special speech organs and the whole body is an important pre-requisite to speaking exercises.

In general, actual speech training is best approached by the contrast method.<sup>20</sup>

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<sup>18</sup> Grant Fairbanks, Voice and Articulation Drillbook, p. 202.

<sup>19</sup> Berry and Eisenson, The Defective in Speech, p. 118.

<sup>20</sup> Ibid., p. 117.

1. Make the sound the way the subject has been making it; then the way it should be made. Repeat several times. When the subject thinks he can do it both ways, have him produce it the correct way several times, and finally the incorrect way.

2. Ask him to imitate (l) and (r) sounds in the world about him. The purring of a kitten, p or k-r-r-r-r or the grinding of the starter of the car gr-r-r-r-r or other sounds using the complete combination of articulators should be helpful.

3. Act out jingles and songs as you say them. For example, sing and act "London Bridge", substituting for the words, "lah-lah-lah". Repeat more slowly, emphasizing the (l) and (r) sounds; and finally, ask pupil to join the game.

Other suggested, familiar lines are "Ring around the rosie" and "Round and round the mulberry bush".

#### DENASAL QUALITY

The denasal voice is that lacking in normal nasal resonance, the fault sometimes termed rhinolalia clausa or "adenoids voice" or "cold in the head voice". This defect is characterized specifically by distortion or weakening of the nasal sounds in speech, and to a lesser degree by distortion of sounds adjacent to the nasal sounds. Though this fault does not necessarily involve general sluggishness of forward articulators as in muffled voice, it is caused similarly by obstruction, such as enlarged adenoids or malignant growths in the nasal passage.

Treatment of denasal voice quality may be undertaken as an articulatory disorder. The three nasal consonants, (m), (n), and (ŋ), should have most of the attention, although in such cases there usually is a nasal obstruction which must be removed before the nasal consonants are possible. Here too, when physiological deviations have been overcome as much as possible, the speech training may be helped by the contrast method of negative learning, both by clinician's demonstration and by subject's production of exaggerated nasal and denasal utterances.

#### NASALITY

Nasality is the defect in which nasal or cul-de-sac resonance is audibly present in the utterance of voiced sounds other than the (m), (n) and (ŋ) which are correctly produced with the nasal overtones. Structural or organic causes include paralysis of the velum or cleft palate with velar insufficiency. Functional cause is habitual failure of velar activity, often following surgical correction of nasal stoppage which pathological flaw previously precluded velar closure.<sup>21</sup>

Nasal quality, universally so-called, responds best to corrective treatment that increases the size of the

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<sup>21</sup> For comprehensive study of speech nasality and these deviations from normal voice production, see: West, Kennedy and Carr, *op. cit.*, pp. 71-85, and G. Oscar Russell, Speech and Voice. Under the caption, "Nasality and Nasal Resonance", p. 18, Dr. Russell discusses the cul-de-sac principle as it operates in the human voice.

oral channel in speaking.<sup>22</sup> "Channelizing" the tongue can be taught most easily by prefixing (w) before vowel sounds. Jingles about a wasp, a walrus, Walter, wadding, wampum, a wart, a walnut, etc. are suggested as most appropriate beginning exercises since the back vowels are usually less nasalized.<sup>23</sup>

A second phase of treatment to eliminate nasality requires training in distinguishing between nasal and non-nasal sounds. Most studies emphasize the conscious observation of the relaxation of the velum.<sup>24</sup> Again, a negative learning method may be used.<sup>25</sup>

Still another general approach is advocated by Williamson in his "adaptations of techniques used for developing singing voices, assuming that in correcting the weak, non-resonant voice and developing general resonance, unpleasant nasality will disappear..... a technique so successful that in only one-seventeenth of the cases was it necessary to resort to velar occlusion exercises."<sup>26</sup>

<sup>22</sup> Anderson, Berry and Eisenson, Fairbanks, Orr, Russell, and West all subscribe to the principle of increasing the size of the oral channel in overcoming nasality.

<sup>23</sup> Berry and Eisenson, op. cit., pp. 182-188.

<sup>24</sup> Both Orr and Anderson recommend soft-palate exercises, e.g., vigorous repetition of such drills as "ung-ah-ung-ah, ung-oh-ung-oh, ung-oo-ung-oo" etc.

<sup>25</sup> Avery, Dorsey, and Sickels, First Principles of Speech Training, p. 267.

<sup>26</sup> A. B. Williamson, "Diagnosis and Treatment of Eighty-four Cases of Nasality," Quarterly Journal of Speech, pp. 471-479, (December, 1944). Professor Williamson claims the literature has placed undue stress on velar control.

Noteworthy in Williamson's remedial methods is his report that nasality, as such, was completely ignored on the assumption that some nasal vibration contributes to a fully resonant voice. A significant suggestion from this study is that regarding specific training in shaping vowels with a minimum quarter inch (or larger) opening between the front teeth and with the tongue forward and low in the mouth.

When nasal quality is associated with cleft palate or repaired cleft palate, the various drills to obtain velar closure are generally regarded as essential in speech improvement.

#### FAULTY PITCH LEVEL

Faulty pitch level, often associated with lack of pitch range, muffled and throaty quality and inadequate volume, is most typically the result of imitation of poor speech models, various adverse personality traits, emotional disturbances, strain and nervous tension. More commonly, the habitual speaking level of the individual is above rather than below the pitch that he should be using. Worry, excitement, nervous tension, improper breathing, and strain in the throat are among the many factors which may operate to raise the pitch above the best level.

To lower the pitch, it is recommended that the correctionist assist the defective in following these steps:



1. Discover the optimum pitch.<sup>27</sup>

2. Having found the optimum pitch, vocalize "ah" on that pitch until you are positive that you can produce the tone without faltering or search.

3. Gain maximum relaxation of muscles of the neck by yawning, sighing and adding tone to the sigh, "ah-a-a"; and repeat this procedure several times. Hum in a low tone; when you are sure of the pitch, go from humming to "oh, no"; and repeat it several times. Feel the position of the larynx as you hum; do not allow it to rise as you shift from humming to words.<sup>28</sup>

4. Find your "conversational key" on the piano (between middle C and E ordinarily for women, or an octave lower for men). If it is higher than your optimum pitch, take the pitch down one step at a time to the accompaniment of the note on the piano. Use such simple lines as

<sup>27</sup> Virgil A. Anderson, op. cit., p. 369, "...there is no reliable method of discovering the optimum pitch, at least not one that is available to the average student of voice. Moreover, the whole concept of optimum pitch rests upon a more or less theoretical foundation. However, the following procedure is suggested as worth trying: Stop up the ears with the fingers or by pressing the tragus over the opening into the ear. With ears thus closed, sing ( ) or hum (m) up and down the scale until you arrive at a tone at which the sound seems to ring loudest in your head. That should be your optimum pitch." See pp. 368-369, this reference, for procedures to determine the singing range, the general pitch level, and the speaking range.

For a more elaborate method of estimating "natural pitch", see Fairbanks, op. cit., pp. 168-170.

<sup>28</sup> This approach is discussed in Berry and Eisenson, op. cit., pp. 191-200.

"Hickory, Dickory, Doek" or "Boom, boom, boom". Check your key at end of exercise. The object is to stay on optimum pitch.

To raise or lower habitual pitch level, drilling at extremes is generally recommended. Reading a given passage at high pitch levels; then repeating at low pitch levels improves one's awareness of the range of his voice and is an aid to working in the desired direction toward natural or optimum pitch.<sup>29</sup>

#### DISORDERS OF INTENSITY

Extreme loudness and extreme weakness of voice are usually associated with certain personality characteristics.<sup>30</sup> In general, weak voice is likely to be associated with physical weakness and lassitude, shyness, submissiveness, inferiority attitudes or repression. The physiological factors of endocrine unbalance and dietary deficiency are possible causes to be considered. When study of health yields no clue, the personality factors should be evaluated with a view to discovering evidences of maladjustment. However, the clinician who is consulted to assist in correction of either the relatively common weak voice or the uncommon fault of excessively loud voice will generally do well to give first consideration to the

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<sup>29</sup> See the discussion of improving the mono-voice, p. 73.

<sup>30</sup> Anderson affirms that careful studies reveal significant correlation between personality traits and intensity of the speaking voice. (V. A. Anderson, op. cit., p. 75)

possibility of causation by unfortunate imitation or other environmental influences effecting the habit.

It should be recognized that defects of intensity, like other defects of vocalization, may result from abnormalities of the structural parts involved in speech sounds.<sup>31</sup>

Developing adequate force or intensity is likely to be complicated by very poor articulation or by some defect of voice quality. Initially, the correctionist may find easy improvement in some cases by the simple measure of lively, loud stimulation with manifest expectation of similarly dynamic, vocal response from the subject. Occasionally, the fortunate combination of suggestion and example can charm forth latent force so effectively that additional therapy need be merely an extended application of such stimulation.

More methodically, however, the correctionist should impress the subject with the fact that control begins with strong diaphragmatic-abdominal breathing. One must resist

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<sup>31</sup> The American Magazine, February, 1934, p. 84. A young auctioneer from Danville, Kentucky, broke some kind of record when he stood on a mountain top and let out a "yee-hoo" that was heard in three states and for eight miles. "Doctors found he has a broad, high arch in the roof of his mouth, a large larynx, vocal cords longer and thicker than most, a four inch chest expansion, an extra large frontal cavity, and wears a 17½ collar." Author's note: Presumably, marked deficiencies in development of these parts of the vocal mechanism might contribute to weakness of intensity.

constantly a tendency to exhale the breath stream rapidly.

Then , the subject should visualize the voice, facial expression and bodily action of someone whose vocal intensity he enjoys. He should keep in mind this picture.

Practicing the calls of train-criers, hog-callers, auctioneers and circus barkers should increase strength.

Making himself heard in progressively larger imaginary audience situations is standard procedure for the person with a weak voice.

As with other voice problems, the individual with voice of low intensity should learn the contrast between his voice and the opposite type, a degree of which attribute he is aiming to acquire.

#### MONOTONOUS VOICE

Acquiring a variable voice instead of a mono-voice involves cultivation of one's range of variations in pitch, intensity, timing and quality. It is the opinion of the writer that emotional sagacity or integration and semantic concept of language uttered are basic to cultivation of effective control. Presumably, of course, the emotional integration and the semantic concept may be as elementary as the speaking demands of the individual require. In other words, the person who would have colorful variability of speech should understand fully what he says.

One study recommends these steps toward finding a new, variable voice:

1. Strive constantly to introduce color into your ideas. Remember that your expression will be as dull or as alive as your thinking.
2. Exaggerate some part of your ordinary conversational pattern each day; try such an habitual greeting as "hello". Put the maximum color into it; don't worry about the effect.
3. Laugh merrily, jubilantly. Giggle softly, titter, chuckle. Now simulate Sir Toby Belch in a raucous laugh... Do not inhibit the laughter; at its height, exclaim "oh", or "You don't mean it".
4. Walk vigorously, think vigorously, speak vigorously. Whatever you do, do more so.
5. How many distinct meanings can you give to a single word, "yes" or "no", or to such a phrase as "not at all" or "oh well"?
6. Determine changes in expression to reinforce meaning of various colorful passages.
7. Since variety of rhythm is an essential of lively speech, some words and phrases should be spoken rapidly; others very slowly.<sup>32</sup>

Following are selected extracts from Fairbanks' Drill-

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<sup>32</sup> Berry and Eisenson, op. cit., p. 200. Being simply a reinforcement of the nuance value of language elements, effective timing variety is especially dependent on comprehension of finer shades of meaning. Some obvious correlations between timing of speech and meaning factors include the staccato tones and rapid rate that are used in expressing impatience or exasperation, and the slow rate and prolonged tones that show leisurely reminiscence.

book designed to improve flexibility of pitch.<sup>33</sup>

"...2. Working at a low level of pitch, read the following passage (a) chanting in a monotone, (b) with a narrow range, (c) with a medium range, (d) with an extremely wide range.

"In speaking or reading, the good speaker uses a pitch variation of about two full octaves, while the poor speaker may limit the variation of his pitch to two or three tones. The actor, whose techniques involves an element of artistic exaggeration, may vary his pitch as much as three octaves. It is not desirable for one to attempt to emulate the actor in ordinary speech, but it is even less desirable for him to allow himself to sound monotonous. Good variety in pitch, without affectation, gives a sense of vitality and variety to any type of speech or reading.

3. Repeat the four readings of the passage, employing the pitch ranges specified but at high pitch levels.

4. Repeat but at your natural pitch level.

5. Read the following passage, beginning with a chant and increasing your range gradually until you end by reading with an extremely wide range.

A recent experiment indicates that there is a definite relationship between pitch variability and pitch level. In this experiment a group of superior readers recorded uninstructed readings of a test passage and then listened to the records of their own performances. They then were instructed to read with greater flexibility, and this second performance was compared to the first by means of objective measurements. It was found in each case that the second reading not only was more flexible, but also was higher in pitch level than the first. When a like comparison was made between normal readings and less flexible readings, it was found that the pitch level was lowered. In order

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<sup>33</sup> Since effective training in variety is attempted usually only by adolescents and adults, this material is cited as appropriate for use by literate adults.

to establish more definitely the relationship between pitch level and flexibility the procedure was reversed by having the readers listen again to their normal readings and then read at higher and lower pitch levels. Measurements of these performances also were made, and it was found that at higher pitch levels the readers had increased flexibility, while it had been decreased at lower levels.

6. Read the passage again, but reverse the above process.<sup>34</sup>

Loudness variations are graphically considered in certain studies.<sup>35</sup> For the most part loudness differences between phrases and between words are determined on a logical basis. Phrases of greater importance are spoken at louder levels than those of lesser importance. It has been shown experimentally that loudness differences of superior speakers are related to the grammatical parts of speech.<sup>36</sup> The adverbs, adjectives, nouns and verbs, words that carry most of the meaning, usually are spoken much more loudly by good speakers than are other parts of speech, such as pronouns, prepositions, conjunctions and articles.

The rather complex subject of logical stress must be explored considerably before the substantiated details of the vocal attributes of loudness, pitch and duration are thoroughly explained.

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<sup>34</sup> G. Fairbanks, op. cit., pp. 176-177.

<sup>35</sup> Ibid., pp. 197-200.

<sup>36</sup> M. D. Steer and J. Tiffin, "A Photographic Study of the Use of Intensity by Superior Speakers", Speech Monographs, I, 72-78 (1934).

## FUNCTIONAL VOICELESSNESS

Aphonia, or complete absence of voice, traceable to functional causes, is likely to be a case for ingenious, practical mental hygiene.

Methods of approach are widely varied, and any one may be variably effective with different individuals. Hypnosis, strong auto-suggestion, massage, cold compresses, electrical stimulation, and shock are among the advocated therapies.<sup>37</sup> Since the underlying cause is typically psychological, the analysts and psychiatrists will generally recommend mental catharsis either through hypnoanalysis or narcosynthesis, or through "talking it out" in full consciousness by whispering or written language.<sup>38</sup>

Whether or not psychiatric treatment is obtained, the clinician should seek ways to build up security, serenity, and stable emotional adjustments to all situations.

## GENERAL APPROACHES TO CORRECTION OF VOICE DEFECTS

The obvious, primary recommendation for treatment of voice defects arising from some structural abnormality or pathological condition of the vocal apparatus is removal or

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<sup>37</sup> Berry and Eisenson, op. cit., p. 166.

<sup>38</sup> Karl A. Meninger, The Human Mind, pp. 378-379. This author explains the fundamental principle of expressive psychotherapy, "The patient does the talking....is usually advised not to read about mental illness..... is exhorted to bring forth repressed material and have the courage to look at it for what it is."



modification of the cause. This is a standard approach to correct any deviation from normal in which the cause and effect relationship is clearly ascertainable. In corrective technique for speech disorders, frankly experimental attempts at eliminating causes are often advocated where there is plainly no probability of any harmful effects and definite possibility of beneficial results accruing to the defective individual.

As was stated earlier in this paper, the speech correctionist should be governed by constant discretion in dealing with physiological causes. Where there is vitaminosis or glandular disfunction or structural abnormality, the fundamental therapy is to be undertaken by medically trained personnel before speech training is begun. When the maximum physical rehabilitation has been accomplished, speech re-education is in order.

The correctionist may be equipped with the wisdom and aptitude to deal effectively with functional maladjustments that contribute to voice defects. Unless the clinician is confident that the mental hygiene he proposes to apply is suitable, he should rely on referral to qualified psychological or psychiatric consultation.<sup>39</sup>

The following questions should be answered in the affirmative by the correctionist preliminary to treatment:

1. If the voice defect follows injury or illness, or

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<sup>39</sup> Berry and Eisenson, *op. cit.*, p. 175. "A voice can be retrained only if and when the individual gains a sense of self-identity and poise in association with his voice."

if it is associated with extreme lassitude or tenseness, has a physician approved of speech correction work?

2. If the voice defect seems to be a part of an evident psychoneurotic condition, has a psychiatrist been consulted?

3. Has there been established a careful routine in proper care of nose, mouth and throat in any case where infection may be contributory?

4. Have vocal strains and abuses been eliminated?

Treatment of any of the voice defects cannot be reduced to a simple prescription to suit all cases with like faults. In general, ear training is fundamental. This includes recognition by the defective of the difference between a faulty voice and a desirable one, both in the voices of others and in his own voice. Working from extremes, i.e., alternately exaggerating the defect and the opposite property of voice while gradually approaching an adequate compromise, is widely recommended. To overcome disorders in which hypertension is a factor, "relaxation exercises are helpful and necessary"<sup>40</sup>

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<sup>40</sup> C. Van Riper, Speech Correction Principles and Methods, p. 276. A recommended relaxation sequence is discussed in this reference, with emphasis on positions and activity to effect "quiescence, peacefulness, freedom, and limpness".

## SECTION IV

### DISORDERS OF SYMBOLIZATION

#### NATURE OF DISORDERS

Defects in association of language symbols with the tangible events they represent in time and space are known as defects of symbolization. Particular difficulty in formulating or expressing thoughts in linguistic terms is known to be caused by injury or congenital deficiency in certain cortical areas of the brain.<sup>1</sup> Where there is complete inability of the individual either to comprehend speech symbols or to express spoken words in meaningful and appropriate context, the disorder is called aphasia. Where this inability is incomplete; but rather, as is more commonly the case, involves extreme difficulty in comprehension or utterance of propositional speech units, the disorder is called dysphasia, unless there is a generally subnormal intelligence, properly termed amentia. The nomenclature is based on relative degree of severity, and dysphasia is presumed to be a more generally appropriate term than aphasia.

Extreme cases of impaired symbolization may be speechless, but even they are not likely to be wordless. That is, they may retain many words which may be uttered in automatic

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<sup>1</sup> See discussion of causes, pp. 80-81, this study.

speech, such as word counting, or in emotional speech, but the same words may not be evoked in meaningful or propositional speech. Another typically retained capacity of the dysphasics is that of echoing words spoken by people around them.

The degree of language impairment in any given case of dysphasia is difficult if not impossible to determine. Unless the clinician can obtain reliable information as to the patient's language ability prior to the onset of the disturbance, it is not possible to ascertain the extent to which the language function has been impaired. In the case of dysphasias beginning in infancy we cannot even approximate the amount to which the language has failed to develop, except on the basis of age norms.

Symbolic formulation and expression includes reading, writing and speech comprehension and speech expression. In most instances, one of these functions will show a greater degree of disturbance than the others, but in almost all instances all these functions are disturbed to some degree.

Certain symptoms are typically evident in the dysphasic. In the linguistic field, he may be unable to use abstract terms, yet retain some concept of concrete terms.<sup>2</sup> The

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<sup>2</sup> T. Weisenberg and K. McBride, Aphasia, as cited by Berry and Eisenson, The Defective in Speech, pp. 253-258. These authors list four classifications of dysphasia: predominantly expressive, predominantly receptive, expressive-receptive, and amnesic.

abstraction "green" may have no meaning for him though he may be able to use the term in concrete reference, such as "green grass" or "green light".

In general, dysphasics have suffered diminution of the variability of normal behavior; performances after cortical lesions tend to become stereotyped. There is a weakening of the ability to shift attitude, to dissociate the self from the given situation and deal with imagined situations.

Dysphasics usually show a perseverative tendency to continue an assigned line of endeavor until interrupted or exhausted.

Emotional behavior is typical as may be expected in any individual who is faced with a situation which is difficult or in which he feels quite inadequate.

#### CAUSES

To summarize the most significant facts and opinions regarding the etiology of dysphasia, the following is extracted from the discussion by Berry and Eisenson:

"Early students of dysphasia generally held the point of view that the disorder was a result of a lesion in a localized area of the brain. Broca, in 1864, demonstrated that the speech of right-handed persons was affected by injuries to the left brain hemisphere, and that right hemisphere lesions did not affect the speech of right-handed persons. ... others who followed Broca attempted to demonstrate that localized and specific brain areas were responsible for different aspects of speech, and that injuries to given brain areas resulted in different types of dysphasia.....More recent workers, including Hughlings Jackson and Henry Head, are opposed to strict localization theories, though they agree that the brain

hemisphere on the side opposite the dominant hand is in control of speech functions. Head, the author of the monumental work on Aphasia and Kindred Disorders of Speech, believes that the capacity to use language in any form is the result of physiological activities of certain parts of the brain cortex. When these parts are disturbed, no matter what the cause, the result is a disorder of some degree in the individual's capacity to use language rather than in any isolated manifestations in regard to language.

....possible causes....are many and varied. They include tumors, traumas, hemorrhages, embolisms, and thromboses of blood vessels supplying the cerebral cortex. Infectious diseases such as meningitis, syphilis, and encephalitis are frequent etiological associates....the vascular disturbances, embolisms, hemorrhages and thromboses are the most frequent..."<sup>3</sup>

#### ABOUT AMENTIA

Deficient linguistic development, other than dysphasia, is typical in the speech of the mentally subnormal.

"Except for those rare cases who show echolalia, low grade idiots and about fifty per cent of the high grade idiots develop no speech. The other fifty per cent of the second group develop a sketchy type of speech characterized by indistinctness of enunciation and an extremely limited vocabulary. Efforts at speech rehabilitation of these idiots should be limited to teaching them a few simple words or symbols.....Imbeciles..... should be taught only as much speech as is necessary for their adjustment to their environment."<sup>4</sup>

"Children who have various forms of linguistic retardation---reading disability, dysphasias, or deaf-mutism---present many common characteristics and speech problems from the point of view of both diagnosis and treatment. The underlying remedial principle consists in strengthening the present associations and establishing new ones."<sup>5</sup>

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<sup>3</sup> Berry and Eisenson, The Defective in Speech, pp. 248-249.

<sup>4</sup> West, Kennedy, and Carr, The Rehabilitation of Speech, p. 295.

<sup>5</sup> Ibid.

## SOME THERAPEUTIC OBSERVATIONS

1. Speech retraining of the dysphasic may be started successfully only after there is some spontaneous attempt at communication through overt expression or otherwise.<sup>6,7</sup>

2. "The dysphasic patient, because he is different from other persons, and because he may be aware of the difference, is likely to be a person without confidence in himself and suspicious of others. The removal of suspicions and the establishment of confidence must precede any actual speech therapy."<sup>8</sup>

3. Re-educational work must be adapted to the individual patient. An individual who has been familiar with linguistic symbols seems to be stimulated to produce oral language more rapidly and more accurately by written or printed symbols than by objects or pictures. Nonsense symbols and phonics are useful only as they can be used to build meaningful combinations of sounds.<sup>9</sup>

4. Encouragement of ontogenetic development of speech is useful in retraining dysphasics, as the relearning seems to follow the original pattern for its development.<sup>10</sup>

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<sup>6</sup> Jeanette O. Anderson, "Eighteen Cases of Aphasia studied from the Viewpoint of a Speech Pathologist", Journal of Speech Disorders, (March, 1945).

<sup>7</sup> Berry and Eisenson, op. cit., p. 264.

<sup>8</sup> Ibid., p. 265.

<sup>9</sup> Jeanette O. Anderson, op. cit.

<sup>10</sup> Ibid.

In other words, the "babbling" technique may contribute to improvement.

5. The use of numerical symbols in conjunction with actual objects seems to facilitate counting, addition and subtraction. For example, apples rather than mere pictures of apples should be used as part of the stimulation procedure.<sup>11, 12</sup>

6. "The dysphasic must be well disposed toward the clinician or else he will not work with him."<sup>13</sup>

7. Direct speech therapy should be determined by classification of the patient's speech symptoms.

a. Expressive dysphasics need training in sound production to correct their articulation. This may entail combined audio-visual stimulation and phonetic placement; sometimes by actual placement of the patient's articulators in positions required to produce given sounds and words.<sup>14</sup> "This is a slow and exhausting process."<sup>15</sup> Simultaneous writing, gesturing or drawing should accompany vocal naming of objects. "Pressure should not be exerted to eliminate the visible activity in favor of the conventional verbal

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11 Jeanette O. Anderson, op. cit.

12 West, Kennedy, and Carr, op. cit., p. 296.

13 Berry and Eisenson, op. cit., p. 265.

14 Emil Froeschels, "The Psychosomatic Approach to Speech Disturbances", Journal of Speech Disorders, X, no. 3, (September, 1945). Froeschels declares that organic expressive aphasia is usually treated (in his clinic) by the so-called optic-tactile method. "The therapist shows the patient the position of mouth for sounds..."

15 West, Kennedy, and Carr, op. cit., p. 296.



utterance until the latter is firmly established."<sup>16</sup>

b. Receptive dysphasics, who are substantially deaf from a functional point of view, should be re-educated by similar methods as are stressed for children with severe hearing losses. Associations should be built up between the visible, tactual, and kinaesthetic imagery in speech and the auditory image. Berry and Eisenson recommend that Braille reading should be taught the word blind patient for the comprehension of written language.<sup>17</sup> Lip reading may be a valuable aid to comprehension of spoken language in those cases where auditory inattention is established.

c. The dysphasic child, and in some cases the dysphasic adult, requires the same devices a mother uses in teaching any young child to speak. The clinician gives the subject objects to see and feel; says the name of the object over and over; encourages the subject to watch him closely as he says the word and to attempt to say the word himself. Such practise should be constant and as pleasurable as possible.<sup>18</sup>

8. Recommended for vocabulary building, after success with initial words, is the word list by Thorndyke, in which the words are grouped according to frequency of common use. Of course, any such guide should be supplemented by words

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<sup>17</sup> Op. cit.

<sup>18</sup> West, Kennedy, and Carr, op. cit.

peculiarly applicable to the defective's immediate environment.

9. Probably successful treatment of the dysphasic will require infinite patience on the part of those instructing him for the initial rate of speech acquisition may be discouragingly slow. Any evidences of progress should be pointed out to the defective for such encouragement can do much therapeutic good.

10. The clinician must be interested in the subject.<sup>19</sup>

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<sup>19</sup> Karl A. Meninger, The Human Mind, pp. 374-375. "One must really be interested in the sufferer---one must, in a way, really love one's patients. To be bored or annoyed or disgusted by the fancies and failures and queerness of "nervous" people is to be foredoomed to failure. One has to be infinitely patient and genuinely interested, and yet detached enough---"cold-blooded" enough---to be objective in the handling of the sufferer."

## SECTION V

## SIGNIFICANT THEORIES FOR CORRECTION OF STUTTERING

## GENERAL CRITERIA

With the assumption that it will include the most practical information for the correctionist, the writer attempts in this section to evaluate some principles common to significant methods for management of stuttering.

Although the main concern is with method of treatment, the essence of different theories of causation must be considered to aid in understanding techniques of correction.

Classification of the various authorities into certain schools of thought on the basis of their sometimes gingerly couched assertions concerning their chief points of emphasis would probably be disconcerting to them. With full cognizance of the shortcomings of such classification, the writer has no intention here of erring to hasty generalization by insisting on categorical labels. However, it is of academic interest to note that twelve of the twenty-five authors studied subscribe to a theory which assumes there is a physiological basis for stuttering;<sup>1</sup> seven present theories

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<sup>1</sup> Three of these refer specifically to imagery deficiency. Dr. Swift theorizes a lack of development of the "visualization area". Dr. Pichon and his collaborator, Mme. Borel-Maisonny, state that the "essential generating disturbance" is lingui-speculative insufficiency. Bryngelson, Travis and Van Riper all note a correlation between stuttering and lack of cerebral dominance. West, Berry, Eisenson, Greene, Boome, and Nadoleczny all make less specific allusions to predisposing neurological factors.

of psychoneurosis being the underlying condition;<sup>2</sup> and six imply that conditioned responses resulting from conflicting speech patterns, or simply bad habits of control, cause stuttering. Without exception, those who subscribe to a theory of physiological basis declare that psychoneurosis or personality maladjustment usually becomes a contributing factor.

In this paper, the different opinions regarding management of stuttering are discussed in accordance with the differentiation of the theories by these three questions: (1) Does the authority think that stuttering is a direct outgrowth of specific constitutional factors?---or (2) of developmental, environmental influences?---or (3) does he believe that it results from a neurotic condition? It is not suggested that these questions are answered in clearly mutually-exclusive theories. It is presumed that the significant opinions are included in these three groups, and that generally this is a reasonable scheme for classifying the differences of viewpoints. An attempt to evaluate points of agreement in treatment will be made in the chart and summary concluding this section.

Definition of the term "mental hygiene" becomes necessary because it is used with various connotations in the

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<sup>2</sup> Included in this group are Coriat, who supports the psychoanalytic theory, and Johnson, whose explanation of the "semantogenic" and "diagnosogenic" origin of stuttering makes somewhat doubtful the appropriateness of his classification with the "neurotic" school of thought, although a factor of neurosis is an essential part of his theory.

articles on stuttering. According to some workers in the field, if the individual is adjusted to his difficulty, i.e., if he is satisfied with his relationship to life situations, he is not in need of mental hygiene. Others believe that all stutterers are maladjusted to group living and that the stuttering is indicative of the maladjustment. As used in this study, mental hygiene includes those principles of treatment that are primarily psychological, either intended for self-integration of the individual aside from the group, or to aid the person in his relations to the group.

"Significant theories" here refers to the methods described in published papers of twenty-five leading specialists in the field of speech correction.<sup>3</sup>

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<sup>3</sup> A major reference was the compendium entitled, Stuttering, Significant Theories and Therapies, by Eugene F. Hahn, late Director of the Speech Clinic, Wayne University, Detroit. In addition to consulting separate references by Berry and Eisenson and by several of those who contributed to the compendium, the writer arbitrarily selected twenty-five authorities whose twenty-three theories\* are believed to be most comprehensive for clinical use. Included are principles expounded by the following: Smiley Blanton, M.D. and J.S. Greene, M.D., New York City; C. S. Bluemel, M.D., Denver; Dr. Knight Dunlap, Los Angeles; Dr. J. M. Fletcher, Tulane University; Mrs. Mabel F. Gifford, Chief, Bureau of Speech Correction for California; Dr. L. E. Travis, University of Southern California; Mr. S. D. Robbins, Emerson College, Boston; Dr. Robert West, University of Wisconsin; Dr. Bryng Bryngelson, University of Minnesota; I. H. Coriat, M.D., Boston; Mrs. E. H. Young, Denver; Dr. Wendell Johnson, University of Iowa; E. L. Kenyon, M.D., Chicago; Meyer Solomon, M.D., Chicago; W. B. Swift, M.D., Boston; Dr. C. Van Riper, State Teachers College, Kalamazoo; Max Nadoleczny, M.D., Munich, Germany; E. J. Boone, M.D., and W. A. Carot, M.D., London; Emil Froeschels, New York (formerly of Vienna); Dr. E. Pichon and Mme. Borel-Maisonny, Paris.

\* Berry and Eisenson, and Pichon and Borel-Maisonny are collaborators.

## THE "PERSONALITY MALADJUSTMENT" SCHOOL OF THOUGHT

"The theory of stuttering that holds most in common with the objective psychological viewpoint is that of Fletcher (1928), which holds that the condition is not a true speech defect, but is a personality maladjustment. The stutterer suffers his greatest difficulty when speaking is a social communication."<sup>4</sup>

Professor Fletcher states, "...it should be diagnosed as well as treated as a morbidity of social consciousness, a hyper-sensitivity of social attitude, a pathological social response".<sup>5</sup>

Because of the basic assumption that a neurotic condition is the ailment underlying the symptom of stuttering, those who hold this theory may be ordinarily expected to rely considerably on mental hygiene principles in treatment. All seven of the authorities referred to in this section include some practice of mental hygiene as a major part of their corrective procedures.

Fletcher advocates social therapy when he contends:

"It is feasible...to manipulate the stutterer's audiences, especially his school audiences...so as to relieve those emotional factors in the immediate causation of stuttering.

In school the stutterer's entire schedule, not merely his speech work, should be controlled and supervised by a person who is informed concerning the psychology of learning, of habit formation and of personality development. Mental health rather than knowledge of subject matter should be the chief objective..."<sup>6</sup>

Mrs. Gifford explains her theory of the cause of

<sup>4</sup> L. F. Shaffer, The Psychology of Adjustment, p. 248.

<sup>5</sup> John M. Fletcher, The Problem of Stuttering, p. 226.

<sup>6</sup> Ibid.

of stuttering with this statement:

"...stuttering is purely psychological in origin---a problem of emotional maladjustment involving the total personality. The conflicts arising from emotional maladjustment are expressed through the speech tract in spasmodic disturbances. These symptoms soon become fixed because both parents and child believe it to be a speech difficulty, after which the entire attention is placed upon the symptom with little understanding of the causes that are producing it."<sup>7</sup>

The primary aims of Mrs. Gifford's approach are emotional stabilization and re-education of idea associations toward speech improvement. In keeping with the personal observation that there is "a trace of hypnotic personality" about Mrs. Gifford, there seems to be an element of hypnotic technique in her steps toward speech correction, and physical, mental and emotional elements seem inseparably combined throughout the recommended procedure. She advocates:

1. Development of control or poise...built on relaxation and confidence.
2. Body stillness exercises, such as standing still without any support, over increased intervals, using abstract key words selected for thought, such as "stillness", "calm", "strength"
3. Mental stillness, in which the attention is focused on the abstract idea of calmness as observed in nature and suggestive statements, such as, "I am calm", are used.
4. The use of the "sigh release" expressed through a

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<sup>7</sup> Eugene F. Hahn, Stuttering, Compendium of Significant Theories and Therapies, pp. 42-44.

completely relaxed body, followed by the use of breathy speech, primarily for relaxation.

5. Visualization, in which the stutterer projects himself into a mental picture of a practical life situation in which he has had speech difficulty. He assumes the desired emotion and poise, and sees himself speaking with fluency. He holds this mental set until he experiences a feeling of satisfactory triumph over past fears.

Dr. Smiley Blanton's objectives of treatment are: (1) to relieve the emotional difficulties, (2) to readjust the stutterer to his environment, and (3) to relieve the symptom called stuttering. He maintains that individual guidance is suitable for the greater number of cases and is simply a practical application of good mental hygiene. Family cooperation is necessary and parents must be willing to accept advice as to overindulgence or overharshness in discipline. Only those methods are recommended which relieve underlying emotional tensions.

Professor Robbins uses, in addition to detailed exercises for speech training and "thought training", certain methods for cultivation of emotional control. He writes:

"...speech training and thought training will be of no avail if the stutterer is unable to control his emotions while speaking. All adult stutterers are required to answer some 250 questions on a special personality questionnaire for stutterers. They are also required to work out nine sheets on attitudes toward family, neighborhood, health and physique, education, religious and political beliefs, job, sex, their social activities, and those little things which continually annoy or irritate them. From these work sheets and this questionnaire



I prepare a list of attitudes which they need to change if they are to have full control over their emotions while speaking, and tell them how to go about cultivating more healthy attitudes in place of these. Much of this mental hygiene work in the case of young children has to be done through the parents,"<sup>7</sup>

Dr. Meyer Solomon, whose theory of the cause of stuttering embraces a multitude of possibilities, including forgetfulness and embarrassment, states the preferred approach is "sociopsychobiological". This sesquipedalian term he amplifies with the statement that there should be a combined therapeutic attack, including physical hygiene, physiotherapy, mental hygiene, speech therapy, psychotherapy and socio-environmental therapy, adapted to the particular individual, with the goal of relieving excessive tensions and gaining integration and readjustment.

He defines mental hygiene to include "the development of healthy habits in emotions and attitudes, faith and conviction of the impossibility of gradual improvement and eventual correction of the disorder, with a sensible philosophy of life."<sup>8</sup>

Professor Wendell Johnson expounds a theory of stuttering that resists classification in a group with any other theories here studied. It may belong equally appropriately with the developmental-environmental school. According to Johnson, stuttering is a "semantogenic" disorder with a specific "diagnosogenic" basis...a disorder in which self-

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<sup>7</sup> Eugene F. Hahn, op. cit.

<sup>8</sup> Ibid.

reflexive evaluative or semantic reactions play a determining role, and that the basic evaluative reaction is that which involves the act of diagnosis.<sup>9</sup>

Regardless of the finer implication of his theory, which cannot be fairly considered in a treatise of this length, Johnson's recommendations for the management of stuttering emphasize psychological adjustment likely more than other factors, though the less common terms, "semantic environment" and "self-reflexive abstracting process" imply a rather different concept.

In developing his ideas concerning helping the stuttering child, he states, "The semantic environment conducive to non-fluency must be modified or eliminated."

"The following conditions are to be guarded against: too much competition from older children and adults who speak abundantly when he wants to speak, inadequate responsiveness on the part of those to whom the child tries to communicate, sheer vocabulary deficiency in some instances, inordinately high standards to be lived up to generally (with respect to cleanliness, toilet habits, table manners, obedience, etc. as well as speech fluency), overly severe discipline, inconsistent discipline."

In general, he contends that treatment of non-fluency or of stuttering in a young child lies mainly in modifications of conditions external to the child. Persistent use of the term "non-fluency" seems to be part of Johnson's editorial example of caution to be used in diagnosis of stuttering.

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<sup>9</sup> Wendell Johnson, "Language and Speech Hygiene", General Semantics Monographs, No. 1, (1939).

Among the essentials of corrective procedure for the "ordinary" adult stutterer, the most noteworthy goals to be reached include:

1. Thorough recognition by the stutterer of the demonstrable extent of his ability to speak "normally",
2. Acquisition of a thoroughgoing tolerance for the non-fluency he has performed or is, at any given moment, exhibiting, in order not to project anxieties and tensions from past experiences into future experiences, and
3. Development of a high degree of consciousness of his own self-reflexive abstracting process, an insight into the mechanisms or techniques by which he generates his evaluative reactions.<sup>10</sup>

Dr. Isador H. Coriat upholds the psychoanalytic theory of stuttering, contending that "in the speech of stammerers the illusion of nursing is maintained and the oral gratification continued by the illusory substitution for the maternal nipple, the stammerer thus retaining his mother into adult life."<sup>11</sup>

His therapy, which is based on a belief in psychoanalysis similar to that of Blanton is defined thus:

"Because stammering is a neurosis, psychoanalysis is the therapy of choice. The analysis should be carried out in the same manner as all therapeutic analyses. The duration of the treatment covers many months, so strong are the resistances of stammerers. With analysis, very marked improvement may take place and this improvement

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<sup>10</sup> Johnson expresses definite reticence to be identified with oversimplification in his exposition, and asks the reader to refrain from reading anything into the statements made.

<sup>11</sup> From Eugene F. Hahn, op. cit.

is permanent, in contradistinction to the frequent relapses which are produced when the symptom alone is treated through speech training. The end stages of this analysis are particularly difficult to handle."

Fear in stammering has been emphasized to too great an extent as its cause. Fundamentally, it represents the resistance against sudden discharges of oral eroticism; as such it becomes part of the analysis and should be handled like other forms of morbid anxiety in which there is a sense of internal danger."

Blanton and Coriat stress the role of the psychiatrist in practising successful psychoanalytic therapy, and cite the method of analysis to be the usual catharsis or "talking out" method prescribed by Freud.

## THE "PHYSIOLOGICAL" SCHOOL OF THOUGHT

The authorities noted in this section subscribe in their theories of causation to a physiological basis for stuttering. In various explanations, they refer to predisposing, constitutional factors of the individual that may contribute to his speech disorder. To a considerable degree, they proceed to include also the assumptions of the "personality maladjustment" school of thought. However, dysphemia, or constitutional differences not clearly defined, are cited as underlying causes by all of them.

Dr. Robert West asserts that stuttering is an outward manifestation of a type of body metabolism that differs from that of the non-stutterer. This inner psychophysical condition is known as dysphemia.

West recommends that no standard rules of procedure generally be laid down for the management of stutterers. Treatment may be any of many social adjustments; separation of the child from his brother or sister, change of school, building up of new recreational interests, change of attitude on the part of teacher or parents, change of type of home discipline, instruction of the child about his body, his appetites and his motives, etc., as the analysis of the case may indicate. Sometimes the therapy will necessitate a warmly sympathetic approach to the child; at other times, one of impersonal strictness. West declares, "The frequent error of amateur mental hygienists is an oversentimental

approach to the patient."<sup>12</sup>

Dr. Greene, whose theory of the etiology of stuttering is similar to that of West, describes his corrective approach as a "composite therapy of a medical, social, psychiatric and re-educational nature". The therapeutic goal he explains is threefold: (1) to make the organism as efficient as possible within its biologic limitations; (2) to overcome the individual's specific fears and anxieties; and (3) to develop a more mature, more stable personality as a whole.

On the psychologic side, what Greene terms group psychiatry is supplemented by individual interviews with the object of breaking down old, unsound emotional reactions, habit patterns and attitudes, and to help build up constructive new ones. Since most of the stutterer's problems are common to the group as a whole, they are discussed openly, and through this discussion lose much of their damaging psychic potency and distorted importance. Here Greene seems to take the key page from the guide-book of the psychoanalysts.

Speech re-education, carried out in a group medium, is supplemented by social activities through the medium of clubs, group singing, dramatics and public speaking.

Bryng Bryngelson defines his theory of cause with the statement that "dysphemia refers to an irregularity of

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<sup>12</sup> West, Kennedy and Carr, The Rehabilitation of Speech, p. 52.

neural integration in that part of the central nervous system responsible for the flow of impulses to the speech musculature...manifested by the peripheral behavior commonly called stuttering."

The essence of Bryngelson's recommendations are found in this quotation from his treatise written for Hahn's compendium.

"...part of the therapy has to do with the basic and developmental phases of the patient's personality. He learns of the insecurities and their defenses which have developed around the fact that he is a 'stutterer'. Insight into mental mechanisms, attitudes, and unwholesome and infantile fears is essential for the maladjusted dysphemic. He must learn new ways of evaluating his aptitudes and talents, and must seek to establish a new sanction for himself as a person. Relief of inward tensions tends to lighten the cortical load of individual and social inhibition. With speech and emotional hygiene, the patient comes to accept himself as a stutterer. After he has admitted this fact to himself and has learned to like to 'stutter' in a new way, he experiences a sort of emotional catharsis which helps him accept himself as he is and not as he wanted to be (a normal speaker)."<sup>13</sup>

Dr. Lee Travis has come to be identified with the cerebral dominance theory, which supposes that conflict between the hemispheres of the brain effects disharmony of some peripheral organs. Recent remarks by Travis disclose that he is abandoning his earlier emphasis on the value of this principle in management of stuttering.

His recommended treatment is based expressly on the mental hygiene techniques of establishing a realistic point of view toward the defect and of correcting the mental set

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<sup>13</sup> Hahn, op. cit., pp. 24-25.

which results in facial grimaces, forced speech, etc. To the end of obtaining a realistic point of view, group meetings are held in which the stutterer meets other stutterers, gives speeches and is encouraged to talk about his difficulty freely and with interest.

In further correcting the mental set, the stutterer's individual stuttering pattern is analyzed. It is pointed out to him that his grimaces, etcetera, are merely bad habits acquired to hide or cover his spasms. With the idea that he is not to hide his stuttering, he is trained not only to change his mental set toward the defect but to stutter in a forward, flowing, easy, "bouncy" pattern, as in ba-ba-ba-ba-ball. This is the foundation of the various bounce techniques, e.g., the silent and whispered bounces, and the extended final syllable of the word preceding a spasm.

G. Van Riper brings forth essentially the same etiological explanation as Travis. He believes that the basic cause of stuttering is the inability of the nervous system to coordinate the paired speech musculatures in the precise temporal pattern required by normal speech. Then he describes thus the intensification of the disorder,

"...the more the child struggles, the greater grows his abnormality; the greater the abnormality, the more intense his fear and shame; the greater the emotional stress, the more frequent the moments of stuttering."

Pertinent to this study is Van Riper's generalization, "We all try to give the stutterer freedom from fear and shame and contortions and all the other primary and secondary



symptoms. We (speech correctionists) all use mental hygiene."<sup>14</sup>

His formula for applying mental hygiene includes essentially the same "objective attitude" as Bryngelson and Johnson advocate, involving intelligent, unemotional acceptance of his limitations coupled with determination to overcome his difficulty.

Dr. Walter Swift states that the cause of stuttering is a deficiency in the cuneus or visualization area because, he claims, stutterers are provenly deficient in the imagery that is stimulated by words.

His recommendations for treatment are concerned almost exclusively with building up this visualization function. In this process he recommends using first the melody area (of the brain) in developing the speech concentration followed by gradually more elaborate visualization and description of objects and situations.

Dr. Boome, of London, England, and Dr. Nadoleczny, of the University of Munich, employ rather individualized phraseology to present theories of cause quite similar to those of Greene and West. Without more explicit data to substantiate the point, they are both definite in attributing stuttering to constitutionally neuropathic tendencies. Dr. Boome's mental hygiene consists primarily of leading the stutterer away from obsession with the func-

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<sup>14</sup> Hahn, op. cit., p. 107.

tioning of his speech mechanism. Dr. Nadoleczny indicates that a "psychically re-educational" therapy is required to change the personality of the stutterer by freeing him from inhibitions. The techniques used to achieve these results are essentially the same as those of others who emphasize personality maladjustment.

Dr. Pichon and Mme. Borel-Maisonny of Paris, France have developed a theory that includes Dr. Swift's main considerations. Their theory is summarized in this statement: "the etiological study of stuttering amounts, on one side, to the research of the causes of this lingui-speculative insufficiency and on the other side to the study of the factors of mismanagement of the insufficiency".<sup>15</sup>

In addition to training in language symbolization of thought so that he utters his sentences "only when they are entirely formed and melodiously constructed in his mind", Pichon and his collaborator recommend a general "psyche-therapeutic treatment, eventually of a psychoanalytical character intended to liberate the subject from psychic conflicts.....".

Jon Eisenson's view is that stuttering is a manifestation of a perseveration, i.e., the tendency for a mental or motor process to continue in activity after the situation which called for it ceased to be present. He claims experimental evidence reveals that "stutterers

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<sup>15</sup> Hahn, op. cit., p. 143.

showed a greater tendency to resist change, a greater tendency for a response, once made, to be made again, although the situation called for something different."<sup>16</sup>

With his collaborator in the noteworthy text on speech correction, Mildred F. Berry, Eisenson implies a belief that this perseveration that causes stuttering occurs in persons constitutionally predisposed to instability in unfortunate environments.

The therapeutic program they propose is a selective omnibus of several of the others. Much emphasis in their regimen is placed on the need for conscious relaxation and avoiding fatigue. Also, they recommend competent psychotherapy, re-education of other members of stutterers' families and school groups and breathing control exercises.

#### THE "DEVELOPMENTAL" SCHOOL

The six authorities whose viewpoints are included in this section have expounded theories with the common premise that stuttering is developmental in nature, that it is a habit; and they do not imply that either personality maladjustment or dysphemia is necessarily a contributing factor.

Dr. C. S. Bluemel is likely the foremost advocate of the inhibitory theory of stuttering which supposes that stuttering results from inhibition of the conditioned

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<sup>16</sup> Berry and Eisenson, The Defective in Speech, pp.235-245

response of speech before the mature speech reflex is securely established. The inhibiting factor may be excitement, fatigue or shock, and the severity of the inhibition determines the extent of the disorder.

Supplementing exercises in reading in unison, whispering, sedation and bed rest, Dr. Bluemel's most notable mental hygiene practice noted in articles studied is his recommendation that it may be necessary to "tranquillize" the patient's life and his environment in order to prevent a recurrence of the speech disorder.

Knight Dunlap declares that stuttering is a habit which can be broken by the use of the negative practice. Dunlap follows through with specific instructions for the use of negative practice, involving mainly voluntary stuttering on selected words in lists and reading passages. On the basis of the available literature, one can draw only a rough inference regarding the methods he advocates for removing "any operating causes in the stutterer's life", which he reiterates is prerequisite to therapy.

Edna Hill Young, leading exponent of the motokinaesthetic method of treatment attributes the cause of stuttering to a conflict in speech patterns, though she avoids being dogmatic when she includes the modifying phrase to the effect that this conflict is "one of the main contributing causes". Her techniques have been rather thoroughly developed to combine auditory, visual and kin-

aesthetic approaches for teaching and correcting speech.

Dr. Elmer Kenyon explains stuttering as primarily a disorder in the cerebral control of the vocal cords for the production of an individual speech sound. "Whether the normal or abnormal control over the vocal cord mechanism..... shall in a particular instance prevail constitutes the stammerer's fundamental difficulty." However, Dr. Kenyon does not maintain that this cerebral control difficulty amounts to a specific constitutional factor of difference in the stutterer. Rather, he attributes it to accidental production of vocal cord adduction resulting from childish confusion, or some other undetermined chance circumstance. To clarify further, he says, "....the provable fact is that certain children do.... substitute vocal cord adduction for normal speech sound production..... If it is continued, the same tendency to habit production as attends normal speech sound production takes effect and stammering gradually becomes a habit."<sup>17</sup>

His explanation of treatment is devoid of further detail. He claims to have not failed to bring about complete and permanent recovery in all cases of stutterers aged eight to twelve years by keeping the stammerer's mind continually on the production of controlled, normal speech. He makes no such claim for older cases.

W. A. Carot of London, England theorizes simply that

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<sup>17</sup> Hahn, op. cit., pp. 69-70

"Stammering is a habit originating from a first shock."

Two of his recommended steps of treatment involve mental hygiene practices, viz., (1) altering the mental viewpoint of the patient with regard to speaking, and (2) eliminating the feeling of nervousness which has arisen as a result of the stammer. In order to alter the mental viewpoint with regard to speaking, Carot proposes that the stutterer, with a sense of his own speech inferiority, must be trained to regard speaking objectively "...to analyze the techniques of...anyone who relies upon his speech as a means of livelihood!" If the stammering has caused, or is allied to, a highly nervous and negative attitude toward life, then he believes psychoanalysis is necessary.

Dr. Emil Froeschels, who believes that stuttering is caused by an incongruity between the speech temperament and the ability to find the right words or grammatical forms, has the corrective technique he terms "breath-chewing". This method requires the patient to make toneless, savage-like eating movements, at first by opening his mouth and using extensive movements of lips and tongue, then accompanying the eating movements by sounds of breathing out. In addition to the basic exercises of "breath-chewing", Froeschels deems a "general psychotherapy" to be necessary in many cases. In his most recently published article known to the writer, Froeschels discusses the "psychosomatic" nature of stuttering, and to some degree concurs

with Fletcher in recommending re-education through modification of disturbing factors of environment.<sup>18</sup>

#### CONCLUSIONS

One must observe after reviewing the different opinions concerning causation of stuttering and recommendations for overcoming the disorder that there is a rather wide range of diverse viewpoints. Adding to this impression is the conspicuous use of specialized terminology, including an occasional neologism invented by an author to refine his specific explanation. A student is warranted to remark regarding some of the theories, "They are merely saying the same thing in different ways".

It is the opinion of the writer that the provable etiology of stuttering is at present sufficiently obscure that all the divergent theories must be accepted as healthy endeavors to discover the truth. By studying particularly the recommended principles and practices for correction of stuttering, one sees there is agreement among the specialists regarding what works best to control the disorder. Theoretical differences are resolved by actual practice.

Since inclusion of verbal descriptions of all the corrective procedures would require voluminous and tedious repetition, the preceding discussion is rather cursory. To facilitate summary of the elements common to the various

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<sup>18</sup> Emil Froeschels, "The Psychosomatic Approach to Speech Disturbances", Journal of Speech Disorders, December, 1945.

recommendations, attention is invited to the accompanying chart, which is generally self-explanatory.

Certain conclusions are supported by the data presented:

1. There are no clear-cut differences in corrective procedures to correlate with differences in theories of causation.
2. The practices recommended by the greater numbers of authorities are essentially practices of mental hygiene.



## PART III

## CONCLUSIONS

Some significant highlights among corrective procedures are emphasized in this dissertation. Within the different sections, only those items deemed by the author most directly useful to the speech clinician are stressed. As was stated in the beginning of the study, the objective is to select and evaluate rather than to make an exhaustive compilation of the pertinent data in the field. This is not an attempt to justify cursory discussion. Condensation of the more generally advocated corrective measures facilitates an approach to clinical work in much the same way as a bibliographical study aids perspective for integrating any research project. The more plausible theories are outlined for easy reference.

Cardinal principles to guide speech correction work include the following which are variously discussed in the preceding parts:

1. Speech correctionists should be concerned primarily with speech defectives rather than with speech defects. As an intimate and intricate attribute of personality, speech deserves personal attention.
2. Since identification of speech defects depends on semantic concepts that are variable even among the "experts", and since most disorders include a mixture of more than one

classified fault, workers in the field should avoid any tendencies toward dogmatism, bickering and confusion in thinking and talking about indexing defectives.

3. Effective corrective work requires recognition of the many factors that may contribute to defective speech, and of the fundamental importance in many instances of cooperation with psychiatrists, physicians, surgeons, orthodontists, and especially with other members of the family of each defective. The speech clinic offers no panacea for curing speech defects.

4. Speech clinicians should be especially diligent in fitting the treatment to individual needs, carefully avoiding inflexible, stereotyped, "pet" techniques.

5. Integration of speech to the level of social adequacy is conducive to integration of the total personality; and conversely, rehabilitation of other processes or parts of the individual often effects improved speech.

6. The practical test of successful treatment depends on the improvement of speech in its practical, common use as a tool of communication.

In a treatise of this nature it is appropriate to include some mention of the probable results of corrective procedures described. How many defectives achieve adequate speech as a result of clinical assistance?

As a matter of fact, the clinics have records of many marvelous recoveries. Given the good fortune of competent

diagnosis and capable guidance, along with the medicine of time, most speech defectives have the practical opportunity for real improvement. The one who needs better speech to meet the requirements of adequacy for his social needs can usually do as much, or more, for himself than the direct efforts of the best corrective workers can do for him. When procrastination is replaced by zeal for faithful work, the correctionist has cause to say that prognosis is good.

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RECOMMENDED PRACTICES FOR RE-EDUCATING THE STUTTERER (Corrective Procedures)

	Modify stutterer's environment to give feel of security	Modify stutterer's attitude toward his speech	Rest and relaxation procedures-tranquilization	Simultaneous writing and speaking	Modify stuttering patterns to break up habits	Strengthening of preferred sidedness	Reading or reciting in unison	Set up simplified situations to build confidence in performance	Encourage participation in group or social activities	Use of voluntary stuttering or negative practice	Psycho-analysis	Moto-Kinaesthetic techniques
Theories of Stuttering	Bryngelson Greene Van Riper West Pichon Borel-Maisonny Berry and Eisenson	Bryngelson Greene Travis Van Riper Boome Nadoleczny Berry and Eisenson	Greene West Boome* Nadoleczny Pichon Borel-Maisonny Berry and Eisenson*	Bryngelson Travis Van Riper	Bryngelson Swift* Travis Van Riper Pichon Borel-Maisonny	Bryngelson Travis Van Riper  Berry and Eisenson	Greene Van Riper West Berry and Eisenson	Bryngelson Greene Swift Travis Van Riper Pichon Borel-Maisonny Berry and Eisenson	Greene Bryngelson West Van Riper Boome Berry and Eisenson	Bryngelson Travis Van Riper Berry and Eisenson	Pichon Borel-Maisonny	
Theories of the Developmental Process	Bluemel Dunlap Froeschels	Bluemel Dunlap Young Kenyon** Carot Froeschels	Bluemel*		Bluemel Dunlap Carot Froeschels		Bluemel Dunlap	Bluemel		Dunlap*	Carot	Young*
Theories of the Basic Circuits	Johnson* Blanton* Coriat Fletcher** Gifford Robbins Solomon	Johnson* Gifford Robbins Solomon	Blanton Gifford* Robbins Solomon		Blanton Gifford Robbins*	Blanton	Johnson	Johnson	Blanton	Johnson	Blanton Coriat*	

\* denotes special stress given to indicated practice.

\*\* denotes indicated procedure emphasized exclusively.