

A STUDY OF THE NUMEROUS CAUSES,
CHIEFLY PSYCHOLOGICAL,
OF
STAMMERING
IN SCHOOL CHILDREN.

BY

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SUMMARY.

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SECTION I.

INTRODUCTION AND SCOPE OF THESIS.

INTRODUCTION AND SCOPE OF THESIS.

During the autumn of 1936 a survey was made of all the children in the elementary schools in the County Borough of Blackpool who were suffering from speech defects.

The primary object of the survey was to find out what need, if any, existed for provision of special classes for stammering and other speech defects within the Borough.

An intensive study of the stammering children was afterwards carried out and this thesis is the result of that study.

There was an average attendance of 9985 children in the schools at that time and out of this number of children, 173 or 1.73% were found to be suffering from definite speech defects as follows:-

Difficulty with certain letters	
and/or baby talk	98
Nasal speech (cleft palate, tonsils	
and adenoids etc).	13
Stammer	62

In Appendix D. a summary of the study made of the speech defects other than stammer is given in order to present a complete picture of the speech abnormalities in a borough of this size.

No child was considered for the purposes of the survey until he had been at school for at least six months so that he might have time to adjust to the school environment.

Head Teachers were asked to supply complete lists of all children in their school who were thought to be suffering from a speech defect. These children were subsequently examined by the writer who is the Assistant School Medical Officer for the Borough.

The initial examinations were made in the schools so that each case might be discussed with the teacher as well as with the parent, and recommendations about the attitude and treatment during school hours could be made personally to the teachers concerned. The children were then listed for subsequent supervision at the school clinic. In a few cases where a parent was unable to attend, or where information given seemed unreliable, the homes were visited to clear up doubtful points about history and environment. The first examination was a long one. Further interviews varied in length according to the needs of the child.

A blank form of the type used at the examination is submitted (Appendix A). Appendix B. shows a completed form.

The examination was carried out on the following points :-

Type of stammer and degree of defect.

Associated physical defect including notes on teeth, nasal catarrh, tonsils and/or adenoids, type of palate, vision and other physical findings.

Notes on general health.

State of nutrition. This was assessed according to the Board of Education's classification namely,

E = excellent

N = normal

S = slightly subnormal

B = bad

Educational standard.

AA = above average (I.Q. over 110)

A = average (I.Q. 90 to 110)

D & B = dull and backward (I.Q. 70 to 90)

FM = feebleminded (I.Q. 50 to 70).

Number of children in family.

Child's position in family.

Alleged cause of defect as given by parents, friends
or patient.

Age of onset of stammer.

Psychological factors, including environment, emotional
disturbances, maladjustments, bedwetting,
lefthandedness, family history including speech
difficulties, neurotic traits, mental illness, fits,
lefthandedness and instability in the child's
grandparents, parents, uncles and aunts, and
brothers and sisters.

All the 62 stammerers found in the survey are dealt
with in this thesis whether they presented specially
interesting points or not. It was felt that the relative
importance of different causes would be better presented in
this way and a more comprehensive, if less exciting, study
shown.

In the Appendix C. a summary of case histories is
given and for the sake of brevity, only positive findings
have been recorded together with negative points which were
thought to have some significance in the study of each case.

It will be shown that stammering in all but a few cases
of delayed physiological speech development is a neurotic
reaction and that a number of causes work together in most
of these children to produce the neurosis. The bearing of
this on future outlook and treatment is discussed.

SECTION II.

NOTES ON SPEECH DEVELOPMENT
AND THE
MECHANISM
OF
STAMMERING.

Speech consists essentially of two parts, the speech content, i.e. the ideas embodied in the speech and the speech form which is the functional aspect and the final result.

The speech content is controlled by the anterior region of the human prefrontal cortex and the speech form by the posterior region. It has been shown however, that efficient speech depends not merely on an intact centre but also upon the condition of the brain cortex as a whole. Gillespie (1933, p. 116) points out that if any of the centres of the cortex concerned with the associated functions of hearing, vision and movements of the tongue, lips and throat is damaged, then the whole speech function is impaired to some extent, in other words speech depends for its integrity on the intact working of a very wide area of brain cortex.

The beginnings of speech are shown when the new born infant cries at the external stimulation of its new surroundings and within a few days crude differences of feeling are expressed in a rhythmic way, by a short deep inspiration then a prolonged expiration. The next phase is one of simple continued repetition to express comfort, i. e. lalling, this is a kind of automatic exercise of the developing neurons. Speech is helped at this stage by eyesight, hearing and touch, the child watching and feeling the mother's lips as well as listening.

Lewis (1936, p.p. 36-37) found in a phonetic analysis of earliest utterance that the early sounds a child makes are not chaotic but fall into three groups of factors, as follows.

1. Principle of expression in the Darwinian sense.

In particular the nasals m and n were found to develop in association with hunger, m, p, and b

with comfort and t and d with discomfort.

2. Differentiation of affective states.
3. Occurrence of behaviour anticipatory of a sequence of events.

After a stage of echolalia or reflex repetition of simple sounds and words comes the intelligent understanding of simple words. In an average child voluntary speech has begun at about 18 months of age (Kerr, 1926, p. 599). At this stage, normally, carelessness is shown with different sounds and the child will be found substituting "w" or "e" for "r" and he will often be satisfied with feeling the beginning and end of words without troubling very much about the middle. About this time, also, a hesitation over words is usually noticed amounting frequently to a definite stammer. This is the so-called physiological stammer and it usually clears up rapidly with speech practice. It may persist on to school age and yield then to special instructions in muscular co-ordination or it may be found difficult to remedy especially if associated with mental backwardness. This type of stammer is in an entirely different class from the majority of cases found in this survey. In most of the cases discussed in this paper the stammer came on some years after normal speech had been established and was a manifestation of a neurosis rather than an actual speech defect.

From the physical standpoint stammering may be due to a blocking of the mechanism of speech at any part, the commonest being the lips and the movement of the tongue against the roof of the mouth. There may, however, be a spasm of the vocal cords or a contraction of the diaphragm. All or any of these conditions may produce stammering speech. Most stammerers show blocking at different parts at different times. The actual level of blocking has no

significance in the approach to treatment except in the case of a prolongation of a physiological stammer where training in co-ordination of specific muscular action is involved. Therefore the distinction formerly employed between stuttering and stammering, namely, that a stutter is an interference with articulation and a stammer is a disturbance of the breathing mechanism is not used here.

The different emphasis placed on the definition of stutter and stammer respectively by different writers on the subject is rather confusing.

McAllister, (1937, p. 3) defines stammer as difficulty in making the necessary articulating or muscular adjustments for speech and stutter as inability to speak with ease and fluency due to inhibition of the normal flow of speech.

Culpin, (1924, p. 146) discusses both terms from a wholly psychological view-point, identifying the type of hesitation found in a hysteric, namely, the interpolation of adventitious sounds in otherwise normal speech, with stammer in the sense formerly signifying a breathing disturbance. He identifies the hesitation springing from a psychasthenic background which he found to be a hindrance in pronouncing words or letters as corresponding with stutter in the older sense of articulatory difficulty.

Children whose only difficulty was one of articulating individual letters and were cured by practising those letters at school are not included in this thesis except in a brief reference in Appendix E. This is a study chiefly of the causes of a neurotic reaction.

The term stammer is used here to describe speech hesitation from blocking at any level and from any cause coming on after normal speech had been established. The term physiological stammer is used for the hesitation associated with the beginning of speech and where from any cause this stage has been prolonged this is noted.

In support of this comprehensive use of the word stammer it is pointed out that some writers including Bluemel (1930, pp. 31-39) have gone so far in their description of stammering as to include hesitation not even concerned with speech at all, e.g. trembling of the arms when playing the piano under stress, difficulty in swallowing pills, and attacks of panting and fear of suffocation, called breath stammering, certain hesitations in walking and in the various uses of the limbs have also been considered to be a manifestation of stammering by Bluemel.

SECTION III.

THEORIES HELD ON STAMMERING
UP TO THE PRESENT DAY.

That defects of speech were classed as an affliction in the same rank as deafness and blindness in biblical times is shown in Exodus IV, 10, when Moses says "I am slow of speech and of a slow tongue" and God replied "Who hath made man's mouth? Or who maketh the dumb, or deaf or the seeing or the blind?". Again in Isaiah XXXII, 3, 4, the same idea prevails, "And the eyes of them that see shall not be dim and the ears of them that hear shall hearken. The heart also of the rash shall understand knowledge and the tongue of the stammerers shall be ready to speak plainly".

In medieval times very little attention appears to have been paid to the question of stammering. Appelt (1911, p. 4) finds as the result of his historical investigations that it was not until Mercurialis, the Italian physician of the 16th century, gave some consideration to the question that stammering seems to have been made a subject for study and consideration. He considered that it was due to humidity of the brain, thus rightly, at least, connecting brain function with the disability.

Later views showed a falling away from this idea, several medical men of the 18th century regarding stammering and all speech defects, which they did not differentiate from stammering, as the result of anatomic lesions and malformations. These ideas were elaborated into theories of unsoundness of the muscles of the speech organs, and weakness of soft palate and uvula and root of tongue, the latter being the supposed cause of faulty movements and positions during speech causing stammering. The first author to point out clearly that stammering was a pathological condition quite apart from other defects of speech was the Frenchman Itard

(1817, p. 129) in a short treatise. This had a great influence on subsequent work on the subject of speech defects. Itard enumerated the consonants where hesitation is normally felt viz. k, t, c and l, but pointed out that this was intensified in spasm of the vocal organs, the difficulty in articulation extending itself to a greater number of consonants. He differentiated his methods of approach to stammerers according to the intensity of the condition and its duration. If the stammer occurred as an exaggeration of a child's difficulty and general confusion in speech development he taught the child to read aloud in a high pitched voice and forced him to return again and again to the articulation of difficult syllables. If this failed he went so far in a few cases as to advise placing the child entirely in the company of a foreign governess who could only speak her own language, thereby forcing slow speech as governess and child learned to speak the child's language together. In one case he enjoined complete silence for a year considering that the trouble was that the organs of speech were prematurely functioning above the level of the child's strength. When dealing with adolescents his method was to make the stammerer study public speaking beginning in a slow, well sustained, precise, high pitched voice of the "tragedy" type, leading them on later, slowly, to a more normal voice. For his more severe adolescents and older patients he invented a concave metal plate to be fixed under the tongue. Its purpose was to cause great muscular effort in speech and he believed that this would help the patient to recover strength of the muscles involved in articulation.

A few years later the opinion was given by Marshall Hall (1841, p. 190) and ^{was} supported by German writers of that day that the impulses of volition, regulated by thinking, did not have, in the case of the stammerer a sufficient

amount of energy with which to prevent the simultaneous interfering occurrence of reflex actions - actions which, being independent of the will, have their origin in the spine. The disproportion between cerebral influence and spinal action was held to be based either on lowering cerebral energy or upon abnormal excitation of the spinal cord and two types of stammering due to morbid conditions of brain and spine respectively were differentiated. For the actual cause of these disturbances Marshall Hall looked to other parts of the body and believed that morbid conditions of the intestines frequently produced the condition though he admitted that all cases were aggravated by any indisposition or by emotion or agitation. Purgatives and tonics were his chief mode of attack and he always emphasised that stammering is not an affection of the voice but of the machinery of articulation.

During the second half of the 19th century variations in the stress laid on the brain and spinal cord are shown by writers on the Continent, there being a tendency in Germany to look upon stammering as due to insufficient co-ordination between the brain and spinal cord and in France to abnormalities of brain action. Gradually the emphasis came to be placed on disturbances in the psychic sphere and from the beginning of the 20th century most of the study of the subject has been approached from this angle.

Appelt (1911, p. 65 et seq) himself a stammerer, made an exhaustive research of the pathological factors involved in stammering and came to the conclusion that the real cause of stammering is "dread of speaking" acting to inhibition to hamper the process of speaking. Dread, according to this writer, causes the word image centre to vibrate and the emotion easily transfers itself to the motor channels which have become more or less irritable through constant stimuli

from the sensorium causing slight retardation of the speech. This dread is still further intensified by psychic, largely unconscious, conflicts which counteract the stimuli of the will and stammering results. He points out how any increase of psychic conflict or any irritability or haste increases the stammer and he elaborates these factors giving some of the momenta which produce this effect or relieve it as follows. At the beginning of a sentence the stammerer sees the whole of the long sentence before him and feels afraid. The further on in the sentence he gets the less is the dread and the better the speech. He felt also that it is easier to get from one word to another than to start speaking. Sounds, syllables, and words at which the patient has already stammered frequently increase his dread, nearly every stammerer having his own particular and personal bugbear letters and words. Stammerers make use of certain expedients such as co-movements, writing down words to be spoken to have them ready in a shop etc. pointing to objects instead of naming them, altering the arrangement of words in a sentence, and inserting redundant words. The application of these expedients appears to diminish the dread. Strong psychic impressions direct attention to other spheres of the senses and the dread disappears. Pleasant company and alcohol diminish dread while the presence of a superior aggravates it. Accessory circumstances which would be unnoticed by the non-stammerer may act either by helping or hindering speech according to the emotional make-up of the stammerer. Recollections of occasions on which he has spoken well brace him while memories of breakdowns in speech increase the dread. The thought that the observer does not know about the infirmity often helps. He points out that from the psychological point of view speech is used to open up new sources of pleasure and an impediment becomes an obstacle to pleasure. The growing child, if not handled

wisely, develops inhibitions and fears, secretiveness being forced upon him from fear of saying the wrong thing. The unconscious fear complex really forces itself between syllables and words. In Appelt's view, if the dread neurosis were treated before it had attacked speech there would be no stammer and he recommends psycho-analytic treatment. Other conflicts are unsatisfied sex problems producing a libidinous emotion from the unconscious which is experienced by the child as dread, the child becoming restless and sleepless. In a neurotic child of this type a sudden fright is usually blamed for the stammer but it is really a secondary cause bringing it to a head or it may even offer an object for the dread already in operation. From the point of view of dread as a cause children of nervous parents are most likely to be attacked, a hereditary disposition existing often. Appelt believes that stammering often sets in on the day when a predisposed child gets hold of exciting knowledge which must be kept secret causing repression with resultant anxiety causing dread. These cases help to localise the psychic cause and he is of the opinion that imitation is not enough even if done wilfully. The imitator must suffer from complexes and be in a condition to appropriate the symptoms.

A completely different aetiological factor is believed by Blanton & Blanton (1936, p. 91 et seq) to cause stammering. They give the cause as loss of cortical inhibition during strain. This allows the nervous system to revert to older and more primitive behaviour patterns and early suppressed movements break through. When this occurs during speech interference, stoppage, repetition or distortion occurs. According to this view the primary movement which has broken through may be a sort of chewing or suckling, vomiting, gagging, swallowing or even sneezing. The conscious adult mind disapproves of these reversions

and suppresses them to the best of its ability whereupon the original anxiety causing the trouble is reinforced by a sense of guilt and a vicious circle is established. When all this happens several times the brain becomes accustomed to responding in this way and expects it and the added element of fear of that particular situation occurs i. e. conditioning acts as a reinforcement to the original blocking. Blanton & Blanton (1936, pp. 83-87) discuss the various factors which are held by popular thought to cause stammering. They believe that there is not a single new case due to putting stammering and non-stammering children together. They also believe that inheritance plays no part at all because speech is learned and not inherited. They made a student survey to find out the relation between lefthandedness and stammerers and found that the correlation was negative. They gave it as their opinion that it is against all sound hygiene to train a lefthanded child to use its right hand, believing that it is better to suffer the inconvenience of using the left hand than the strain of interference. They consider that fright is only a precipitating cause although they record a case of a child of three who stammered as the result of going to see a Santa Claus performance at the end of which the mask was taken off and she saw her own father and felt all sense of security falling away from her. With regard to the question of surgical operations as a cause they feel that they have seen cases which have stammered as the result of tonsillectomy and others who have ceased to stammer after the same operation. They conclude that children who stammer slightly and who are of a nervous and highly neurotic temperament should not be operated on except for a very serious cause and the anaesthetic should be given before the child is taken into the theatre.

An exhaustive study of the causation of stammering has

also been made by Bluemel (1912, p. 43, et seq.) who summarised the causes into Primary and Secondary. The primary cause he believes to be transient auditory amnesia. He describes the production of speech, stressing the complexity of word images and the activities necessary for their appearance in consciousness - the auditory, visual and kinaesthetic centres all being concerned in the final production. The angular gyrus is concerned with the visual image of written words, the first temporal convolution with the auditory memory of words and the posterior portion of the third frontal convolution with the kinaesthetic verbal memory or the "feeling" of words. A functional derangement in the kinaesthetic verbal centre occurred in Bluemel himself when exposed to intense cold at a height of 12,000 feet in the Rocky Mountains and he described his state. His language became unintelligible. He had no knowledge of his condition until he started to speak and there was no discernible impairment of intelligence. Visual images were normal but auditory images were gone except those of the meaningless jargon which was all the speech he could manage. Motor images of hand and arm movements were fairly clear but slightly less definite than usual. He recovered rapidly on returning to lower levels. He convinced himself from his own experiences and from his observations that the usual factors believed to cause stammering such as fear and autosuggestion were only secondary, contributing to the bringing about of loss of memory of the verbal image. He believes that the difficulty is not in beginning a word but in continuing it, e.g. p - ounds. The stammerer says p-p-p-p - ounds because there is a momentary loss of one of the elements of which the word is composed. While the feeling of the word is partially preserved the sound is momentarily obliterated. A severer

degree of this would be aphasia where both feeling and sound images are obliterated and the entire word or words are not forthcoming and actual speech is nil because verbal thought is nil. The stammerer is therefore according to Bluemel a person whose memory for word sounds is weak i.e. who starts the word but "forgets" in contrast to the idea usually held that he speaks without confidence from various causes. This process of temporary auditory amnesia is elaborated further. When the break in continuity of consciousness occurs, a recoil of thought takes place and this may vary in degree from a momentary stoppage in which the verbal image blinks back from the stream of consciousness to a complete block in which all words are obliterated. He believes that this explains the phenomena of imitation and association as causes of stammering. For instance, if the imitator says t-t-t-take, he mentally witholds the sound and very shortly the verbal imagery learns to recoil on its own account. The same mental process happens when a stammerer is listened to frequently even if there is no conscious imitation, association, bewilderment, autosuggestion, giving rise to inhibition of the will and fear. Bluemel (1930, p. 53) discusses treatment from the point of view of this causation and feels that intractability is in proportion to the degree of amnesia. Everything must be done to goad the refractory auditory image into activity and to strengthen it. This must be achieved by careful speech practice and concentration. Since a stammerer can often speak better in a noise he concludes that noise overcomes the inertia of the auditory cells and he advises that the word should be begun firmly as this may arouse and intensify the image. The concentration involved will also dissipate multiple thought. This multiple thought or tendency in stammerers to substitute synonyms to give temporary immunity is strongly deprecated as it prevents the achievement of absolute verbal imagery. Another device

suggested to aid concentration is the bringing to the mind of visual imagery to stimulate auditory imagery, for instance, many people have helped themselves by means of a strong colour imagery - endowing each vowel in the imagination with a definite colour and concentrating and subjecting the mental image to continual introspective scrutiny. For a complete and permanent cure the stammerer must cease to be so dependent upon the auditory image - he must call in the visual and kinaesthetic images to take on a fuller share and supplement the auditory image as it is not likely that he can so far strengthen the latter that it will still function normally in illness or when the subject is tired. In addition to this attention to the primary cause Bluemel recommends attacking all fear by an analysis of it and autosuggestion by countersuggestion. In support of his theories he points out that whereas stammerers have difficulty in speaking they have not usually difficulty in singing. This he believes is accounted for by the greater subjective tangibility of the general auditory impression in singing, and in singing, pitch is pre-eminent while vowel colours are subordinated. Also the inflection of speech demands a more complicated action of vocal organs than song - in singing each single note remains at a definite pitch and there is no change in tension of the vocal cords as there is in speech. Bluemel in a series of tests found that the auditory image was weak in stammerers.

Coriat (1928, p. 10 et seq.) gives a psychoanalytical interpretation of the causation of stammering as follows - the lip zone in early childhood has a double function - nutritional and sexual. Nursing is a sex manifestation from the analytical standpoint and a gratification of the oral libido from the genetic viewpoint. In the adult stammerer the oral stage according to this view persists and is

repressed. Normally speech is one of the earliest sublimations of oral eroticism. Like a child the stammerer may connect words without regard for their meaning in order to obtain pleasure from the rhyme and rhythm. He luxuriates in the sounds of words and their prolonged oral possession tends to annihilate the word through compulsive repetition in the sucking and biting of syllables. Thus the original primitive anal-sadistic impulse still exists in the adult stammerer, a persistence which makes transference so difficult in analytical treatment. According to this interpretation, when anxiety is present in stammering it is not due to the fear of speaking but arises from a resistance to protect the ego from being overwhelmed by the more powerful tendencies to this oral gratification. This original mouth erotism is preserved more by the man than by the woman and this accounts in Coriat's view for the greater preponderance of male stammerers. In analysing the dreams of stammerers Coriat found the various settings of the oral erotic trends - the childish regression and the resistance and transferences towards the analytic situation. He frequently found latent homo-sexuality also anal-sadistic and urethral-erotic traits, the latter manifesting as bedwetting. He believes that the stammerer retains both consciously and unconsciously the original narcissistic aim of early oral gratification. The object of analysis he believes to be the teaching of the ego to sublimate the original infantile oral tendencies. When stammering takes place in a rhythmic way Coriat believes that it is due to the unconscious wish to re-enact the activity of being put to the breast. Conversely if a child has been compelled to go to the breast when not hungry speech difficulty may be a re-enacting of the resistance to this activity. He found the resistance in analysis to be great as the analyst becomes a libidinal substitute for the

mother in the patient's unconscious.

Considerable light has been thrown by Wendell Johnson (1930, p. 93 et seq.) on the question of why lefthandedness and stammering have come to be associated together in popular thought. Working at the State University of Iowa under Travis, (1930, p. XI-XV) experiments and studies were made of the cortical activities of stammerers. They found that definite functional neuro-muscular derangements occur during stammering viz. that there is a reduction in cortical activity due to transient and mutually inhibitive activities of the associated areas of the right and of the left cerebral hemispheres. In the stammerer instead of nervous energy flowing into one centre of greatest facility in transmission it flows into two centres of equal facility in transmission which function in reaction patterns of opposite orientation and configuration to produce in the peripheral speech organs simultaneous or alternate opposition in muscular movement. Rivalry therefore between the two sides of the brain produces the symptoms of stammering according to this school. the neurological basis for this is a lack of a sufficiently dominant centre of activity and this is a functional variant. We may think of its existence in terms of a margin of dominance which exists in range from zero to a very large and safe amount in different individuals. If the margin is small, stimuli of slight emotional value and conditions of slight physical or mental fatigue will cause a disturbance. If the amount of dominance is zero we have the stammerer under all conditions. If the margin is large we have the normal speaker under practically all conditions. Johnson then considers the causes of a lack of dominance in one or other cerebral hemisphere under two heads - heredity and environment. He believes that some are born with no potentiality for the development of the dominant centre or

with only very slight neurophysiological bias in favour of lefthanded development which will be opposed by a righthanded environment. Others possess a natively dominant centre which would warrant normal speech were it not interfered with through birth injuries, physical diseases, emotional shocks and educational practices i.e. changing lefthanded children to the use of the right hand. The dominant centre is the most easily affected by such disturbing factors because it is the centre of greatest susceptibility to all kinds of environmental stimuli. In the corrective treatment the sole aim is to build up or establish a single dominant centre of activities in one or the other of the two cerebral hemispheres. This procedure according to Johnson must be preceded by a careful laboratory examination to show that the motor facility as determined by training is out of harmony with the native physiological leads. In addition to the question of weak cerebral dominance Johnson (1930, p. 124) deals vividly with the importance of the mental attitude of parents and teachers towards the child who stammers, pleading for his extra need of sympathetic understanding, rest and good mental hygiene.

Present day opinion in this country is still divided on the subject of whether the cause of stammering is originally physical or psychical. The Speech Therapist at Guy's Hospital, St. John Rumsey (Feb. 1937, p. 172 and June 1937, p. 215) is convinced that anxiety is only a result of stammering and not a cause. The stammerer, he believes, fails to approximate the vocal cords firmly, uses more breath but produces less tone - a failure in co-ordination which calls for special exercises and practice in correct vocal tone and correct co-ordination of the speech factors. This view is also held by Freda Parsons (1937, p. 159) who is working in the Midlands and whose views are discussed under the section on physical factors. On the other hand E. J. Boome (1934, pp. 91-98) working under the L.C.C. looks upon the

defect definitely as a nervous disorder and sums up this conclusion as follows.

1. Stammering is a nervous disorder.
2. It is definitely curable.
3. Lefthandedness as a factor has been overstressed.
4. Stammerers are frequently above the average in intelligence.
5. Stammering is not usually directly inherited.
6. Part-time treatment is found to be more suitable than whole-time.

A recent noteworthy publication from Glasgow by McAllister (1937, p. 209 et seq.) agrees with Boome in placing fear and anxiety as causes. Her study of the problem is probably the most comprehensive modern work on the subject. She (1937, p. 159) makes an interesting classification of her cases into four groups:-

1. Where the defect is accompanied by abnormality in the structure or functioning of the physical organs involved in speech.
2. Where the defect is accompanied by lefthandedness.
3. Those due to imitation.
4. Those more markedly associated with emotional imbalance.

Her findings confirm the results of this survey viz. that many different factors may produce a stammerer and the causation can not be narrowed down to one particular theory. McAllister (1937, p. 157) had cases due to anxiety, fear, inferiority complex, sex disturbances, avoidance of responsibility and a bilingualism in the parents causing difficulty in mental attitude towards speech. Forcing a child to learn phonic methods of reading was another cause found by her. Bills (1934, pp. 574-584) working in Chicago on the relation of blocking in continuous mental work to fatigue found an increase in frequency and length of block

or pauses with onset of fatigue both in stammerers and normal speakers. He also found a decided increase in the blocks or pauses of stammerers and he showed that stammerers block about twice as often as normals in both vocal and manual responses. Also the blocking of stammerers was found to be significantly longer than those of normals in both types of performance. He assumed that stammering and blocking of vocal and manual responses have a common neurological basis.

Greene (1936, pp. 757-765) working in New York, lays great stress on the extremely sensitive personality of the stammering type, considering that the emotional range overreaches that of the non-stammering type. He believes that an environment of opposition accentuating the native conflicts to which one is conditioned can evoke stammering in its various forms and this opposition may be encountered in childhood and adulthood. This type shows ineffective social adjustment causing efforts to be numerous and scattered and resulting in inferiority and chronic fear. Treatment therefore at his clinic is based upon a re-building of the personality together with concentration on good style in speech and breath control. The methods of the psycho-analytic school are condemned by him as it is in his opinion almost impossible with stammerers to verbalise thought and the fostering of rapport is very drawn out. He prefers direct and indirect suggestion for successful treatment.

That stammering may be due to a temporary stimulus to an upper motor neuron is suggested by the work of Hazle Geniesse (1935, p. 518) of Michigan where stammering disappeared in twenty-four cases when they spoke while walking on all fours. The lack of co-ordination was apparently decreased possibly due to a re-inforcement of reflexes. If stammering as a spastic phenomenon were caused by an upper motor neuron stimulus it might be due to a

temporary dilatation of the capillaries of the precentral cortex. An alteration in blood pressure on assuming the four-legged position may ensue releasing the blood which dilates the capillaries, causing the spasticity to cease and conversation to be more nearly normal. The special point to be drawn from this particular investigation would appear to be that the possibility of a physiological basis for treatment must always be borne in mind. Another aspect of this physiological outlook is provided by Dunlap (1934, p. 206) who considers that improper diet in infancy and childhood and in particular an insufficiency of meat may predispose to stammering and he advises that psychological treatment for stammering should go hand in hand with adequate dieting.

This summary of the views which have been held on the subject of cause of stammering shows how very different some of these views are. The analysis which follows and is summarised in Section IV, illustrating the multiplicity of causes in this series, throws some light on the reason why such different schools of thought have grown. It would appear to be because a disposition to develop a stammer may be conditioned by so many different factors and individual children were found in this survey who could be used to illustrate almost any one of the schools of thought described.

SECTION IV.

TABLE SHOWING SUMMARY OF CAUSES
OF STAMMERING
FOUND IN THE SURVEY
AND
ILLUSTRATING THE MULTIPLICITY
OF CAUSES.

An attempt to demonstrate the multiplicity of factors in these children and also to show at a glance their various groupings is shown by the following chart in which a rough subdivision has been made as follows:-

1. Fear and anxiety.
2. Injury and/or shock.
3. Faulty environment including family predisposition to stammering or general instability.
4. Lefthandedness interfered with and/a history suggestive of weak cerebral dominance.
5. Imitation.
6. Mental backwardness and/or physiological delay in speech co-ordination.
7. Defective health and/or overstrain.

As will be seen, there are 62 columns, one for each case, and a glance down the column under any one number will show the number and nature of contributory causes for that particular case.

SECTION V.

DETAILED ANALYSIS OF SURVEY.

The total number of stammerers found was 62 representing .62% of all elementary school children in the Borough of Blackpool and 35.8% of all speech defects found. Sex Incidence - In the survey 71% were boys. This male preponderance amongst stammerers appears to be universal and the explanation is probably a biological one viz. that the male shows a greater variability in all types than the female. It has been said that the male sex supplies the geniuses and the idiots of the race. Of 236 cases of child suicide collected by Dr. Sacerdote, 67.5% were boys (Kerr, 1926, p. 408). Another example of the greater variability of the male is shown in the figures for colour blindness which occurs in 4% of all males and only in .4% of all females (Parsons, 1931, p. 396). According to Ramsey Hunt (Blanton, 1936, Introduction, p. X) upwards of 5% of the population in males and 1% in females stammer. It will be recalled that Coriat's view, (1928, p. 11) of the reason for this male preponderance, founded on a psychoanalytical interpretation, was that the original mouth erotism, of which he believed stammering to be a symptom, is more preserved in the adult male than in the adult female.

Differences in strength of respiratory and tongue movements between the sexes have been thought by many to be responsible for the sex differences but as boys are believed to breathe more deeply and powerfully, this should make up for any greater strength in tongue movements possessed by girls. Also in so far as breathing is concerned in stammering the greater strength should be to the advantage of boys.

Another popular but rather out-of-date view held has been that women's breathing tends to be thoracic in type due to wearing corsets while men's breathing is more abdominal. The theory was that thoracic breathing is

more subject to control thus giving women an advantage in speech. Fletcher, (1928, p-p. 58-59) went so far in investigation of this theory as to get in touch with the Bureau of Education in Japan where the habits of dress of the sexes are not so different but he found the sex differences in the incidence of stammering approximately the same as in America. In any case stammering usually begins before the age of corset-wearing.

Mental Development - The mental development of the stammerers in the group was found to be average in 56.45%, above average in 9.6% and dull and backward in 33.95%. These figures are very much in accordance with the general findings on the subject, as there is no evidence that the degree of intelligence has any direct bearing on the production of stammer. The neurotic reaction of which stammering is believed to be a symptom does not depend on the amount of intelligence although a point worth remembering is that the frustration felt from mental backwardness of not too severe a degree is likely to produce a feeling of inferiority which may result in stammer. This type of reaction is obviously not so likely to occur in children who are too backward to be conscious of inferiority. Feebleminded children did not come within the scope of this survey as they were not in attendance at the elementary schools. A similar point of view is illustrated by Boome (1934, p. 92) on stammering in aments and dements. He states that stammering is scarcely, if at all, more prevalent among aments and dements than among the normal population. When stammering exists in the mentally defective, we find that it is usually found in the higher grade neurotic types. McAllister, (1936, p. 3) differentiates in this connection between (1) articulatory difficulties, which she finds are frequently associated with mental

defect, and (2) inhibition of the normal flow of utterance, which is not associated with dullness except in a small proportion of cases but may be found in association with supernormal intelligence. The following table shows the distribution of intelligence in the slight, definite and severe stammerers.

	<u>Degree of Stammer.</u>			<u>Total.</u>
	<u>Slight.</u>	<u>Definite.</u>	<u>Severe.</u>	
Above average intelligence.	2	4	-	6
Average intelligence.	7	18	10	35
Dull and backward	2	8	1	11

The classification into slight, definite and severe stammer was an arbitrary one and was made chiefly as a guide to prognosis and also to show to what extent, if any, intelligence influenced the intensity of anxiety, inferiority or other cause of the stammer. Perhaps the most significant point shown, in this connection, is that of the 11 worst stammerers in the series, 10 were of average intelligence and none above average. This suggests, although there is not enough evidence for any conclusion, that where a supernormal intelligence is found in a stammering child it is in no way contributing to the neurosis. The frustration which an unsuitably placed and unsatisfied highly intelligent child experiences may be more likely to find its outlet in activities yielding some more material gain, for instance, delinquency. This line of thought is suggested by the work of Burt, (1937 p. 159) on crime as a natural psychological reaction and by the case histories which the writer has studied at the Institute for the Scientific Treatment of Delinquent Children.

Age of Onset - A study of the age of onset of the stammer showed that 23 of the 62 commenced stammering before starting school, 15 of these before reaching the age of 4 and 8 between the ages of 4 and 5. 24 children commenced stammering coincident with adjusting to the changed environment of being at school, 13 of these between 5 and 6 years and 11 between 6 and 7. Apart from these figures there was nothing remarkable about the distribution of the age of onset except a slight increase at 10 years. The following table summarises the ages of onset:-

<u>Age of Onset.</u>	<u>Number of Children.</u>
Before 4	15
At 4	8
" 5	13
" 6	11
" 7	3
" 8	2
" 9	-
" 10	6
" 11	2
" 12	2

With regard to the early onset of stammering, Appelt, (1911, p. 113) is of the opinion that psychic conflicts which are liable to interfere with the normal innervation of speech do not start as a rule until the child is about three and a half years old and only in exceptional cases of delicacy of constitution or of marked hereditary tendency may a child show the first signs of an impediment shortly before reaching the third year.

This is probably correct so far as stammering as a neurosis is concerned but physiological stammering as a normal hesitation in speech development is very common in

children commencing to speak.

Blanton, (1936, p. 71) believes that virtually every case of stammering begins with the beginning of speech and certainly in early childhood. He was led to this conclusion by finding that every case of stammering during the war had stammered in early childhood. He believes that the greatest number of people stammering at any one time would be found to be about six years old. This is more or less borne out by the present survey but it is certain that most of these children did not stammer with the commencement of speech. Blanton found that at ten years a stammerer either tends to disappear or else to get rapidly worse and the same tendency was shown again when adolescence was reached. Boome and Richardson, (1931, p. 29) point out that there are certain clearly marked stages in the normal development of every child which being periods of mental or physical stress may in themselves be sufficient to account for the onset of stammering if the predisposition is there. These periods may also temporarily intensify a stammer which is already established. These stages are enumerated as follows:-

- First stage. When learning to speak an undue attention to childish defects may set up a dread or anxiety which fixes the trouble.
- Second stage. The fourth or fifth year, with the beginning of school life. In active minded children at this stage ideas may outrun speech and co-ordination may be imperfectly adjusted.
- Third stage. The period of second dentition coincides in the elementary school child with a change to a junior school. This may cause alarm and eagerness to keep up to the standard of older children and may precipitate a stammer.
- Fourth stage. Puberty, especially in boys, who may lose

confidence when the voice changes. Delayed pubescence also may cause a restless fear of the future and a temporary set back.

Child's position in family - The distribution of the stammerers in the family group was also interesting. 48 of the 62 were either first or second children. In this connection it is not inappropriate to recall the psychology of the family position as described by Adler, (1929, pp. 96-106). He states that the psychic situation of each child is individual and differs from others because of the order of their succession. Because of the situation into which a first and second child are born he believes that they each tend to react in a specific and characteristic way to life and to a neurosis if such develops. The first child is usually exalted and spoiled and afterwards suddenly dethroned on the arrival of the second child. He is unprepared for this change and has difficulty in adapting to it. Great tension then arises in his mind and a striving to regain favour and the manifestation of this may be anything from unusual behaviour to prolonged illness. The second child on the other hand has never had the experience of being the only one. Though he is also petted at first he is never the sole centre of attention. Life becomes for him a kind of race to surpass the first child who sets the pace and he is like an engine under a constantly excessive head of steam.

It seems likely therefore that the finding of 48 of the 62 stammerers in these first and second children is connected with the tension which is liable to exist in such children. The following tables shows the details of distribution of the children in the family.

First child	31
Second child	17
Third child	6
Fourth child	5

Fifth child	1
Seventh child	1
Ninth child	1

The actual number of children in each family was as follows:-

9	stammerers were only children.				
26	belonged to a family of 2.				
8	"	"	"	"	3.
9	"	"	"	"	4.
5	"	"	"	"	5.
1	"	"	"	"	6.
3	"	"	"	"	7.
1	"	"	"	"	9.

These figures suggest that to belong to a small family and especially to be the first or second child is a relatively adverse factor in the environment in this connection.

Nutrition - With regard to the state of nutrition which was classified according to the Board of Education's scheme into "Excellent" "Normal" "Slightly subnormal" and "Bad" the greater proportion showed normal nutrition viz: 55 or 88.7%, 5 were excellent, 2 slightly subnormal and none bad.

General Health - The physical examination made at the first interview, and repeated when necessary, did not yield any striking results. The most surprising point was the relative absence of tachycardia. Probably this was because some conversation usually took place first in any attempt to create an atmosphere of co-operation. It was noticed, also, that a thorough physical examination and a clear statement of any treatment to be given always gave the child and the mother confidence and encouraged them to speak freely. The principal findings were as follows:-

Anaemia	10
Bronchial catarrh	4
Slight tonsillar enlargement	1
Nasal catarrh	1
Tachycardia	3
Cardiac irregularity	1
Systolic murmur (haemic)	1
Rheumatic heart	2
Chorea	2
Muscular rheumatism	1
Defective vision (corrected)	3
Albuminuria	1
Pyuria	1

Unilateral incompletely descended testicle	1
Kyphosis and high palate	1
Cervical glands enlarged	1
Thyroid deficiency	1
Teeth very irregular	1

Physical health either in the past history or at the time of the examination, apart from injury, appeared to be the main factor in causation in nine children only out of the sixty two i.e. 14.5%. The cases were Nos. 22, 25, 32, 37, 42, 48, 49, 53 and 57. In No. 22 chorea played a large part in the instability and probably organ inferiority (undescended testicle) with accompanying pain also contributed to the neurosis. It is possible however, that the undescended testicle had itself a neurotic origin but this is not so probable when the delayed development is on one side only. No. 25 had a rapid succession of illnesses, measles, pneumonia, tonsillectomy and two mastoid operations, then scarlet fever. Add to this some inherent dullness of mentality tending to retard development of normal speech and a predisposition to stammering from the father, and it is not surprising that he stammered. No. 32 stammered only slightly and the stammer appeared to be merely a manifestation of the general restlessness and inco-ordination of a chorea. As in the case of No. 22 physical treatment is likely to be the principal line of attack in establishing self-confidence. No. 37 showed the effect of intermittent illness on a child who inherited some instability from his mother. The stammer coincides with recurrent attacks of bronchial catarrh and pyrexia and dies down as good health is regained. No. 42 was a clear case of neurosis of the "lack of confidence" type associated with the changes of puberty. No. 48 shows debility and cardiac atony added to a family tendency to instability, the mother being a stammerer and the sister a bedwetter. Similar is No. 49, the family history of

stammering being much stronger here, as it occurred in grandfather, cousin and mother. No. 53 was clearly due to severe illness causing frequent absences from school and corresponding lack of confidence. This child had suffered from three attacks of pneumonia. No. 57 suffered from rheumatism, cardiac debility. Weak cerebral dominance probably increased his sense of inadequacy.

The mode of attack in this small group, 14.5%, would appear to be, and actually was, chiefly by ordinary physical treatment - salicylates, ultra-violet radiation, calcium therapy, iron tonics, cod liver oil etc. The stammer appeared to be due to the feeling of inferiority produced by frequent illnesses, causing lack of confidence, frustration and hesitation. This mental state was present comparatively superficially and it was remarkable how quickly mental recovery accompanied physical well-being. Confidence was always suggested to the child in interviews, though the mere fact of giving some treatment, e.g. artificial sunlight, carried a lot of weight in these highly suggestible children.

The number of different contributing causes bringing about the stammer in many of these children was a very striking feature in this series, and it became clearer as investigation proceeded that many factors were involved in most of the children. Compilation of the table shows that only 9 of the 62 fall under one group of causes alone viz. Nos. 6, 12, 29, 32, 34, 36, 46, 53 and 61. Of these children Nos. 6, 12, 29 and 36 were felt to be a prolongation of physiological stammer while in the other 5, illness in 2, frights in 2 and anxiety through separation from parents in 1 were the only causes found. Before leaving the question of physical causes there is a further group of 9, where a physical illness was felt to play a considerable though

accessory part. This occurred in Nos. 3, 4, 7, 10, 20, 39, 45, 52 and 62.

In No. 3 we have a girl with a definite anxiety state brought about by the presence in the home of two mentally deranged uncles. This girl was able to recognise the cause of her anxiety, but it was ^{by} giving her corrective exercise and improving her general health that the atmosphere for a cure by psychotherapeutic talks was achieved. No. 4 showed a definite variability according to health and by physical treatment was greatly helped but here a definite shock added to a strong family predisposition actually caused the stammer to develop. The Father Christmas motif as a cause of fright seen here was found also by Blanton (1936, p. 87) though in his case the shock was due to finding that the child's own father was impersonating Father Christmas. This seemed to be due to a loss of sense of security and to a fear of the unknown. It would be interesting to know what fear, if any, the present day child shows at its first contact with this benevolent figure at a Christmas party or in a toy store. No. 7 started his stammering after an attack of measles though here we have unhappiness in the home and a very neurotic mother as the prime factors in bringing about anxiety and instability in the boy. Probably in a case like this it is not the actual illness which precipitated the stammer but rather the fact that the child was forced through illness to get an overdose of the unhappy home from which school was a welcome escape. It is interesting in this connection to note that an elder brother stammered for a time after measles and chickenpox. These are illnesses which do not usually cause shocks and anxieties such as are found to develop in excitable children with diphtheria or scarlet fever or other illnesses necessitating removal to hospital. This poor child in addition to the earlier unhappiness

before his father's desertion had to cope with an unstable mother who later developed a menopausal psychosis and as noted he received unsuitable treatment from neighbours when left in their charge. His powers of recovery and his helpful co-operation under the circumstances were remarkable and hopes of a complete cure are entertained if he is put in charge, as he is now likely to be, of an understanding relative. In No. 10 we have a boy who had a frightening injury superadded to a history of pneumonia and meningitis. The shock was too much for him and complete repression of memory of the accident occurred causing general instability and anxiety. He further rationalised the attitude by insisting that his stammer was due to irritation and it was interesting to watch him grasping the truth of the situation. This was an interesting and hopeful case and it was fortunate that his health after the age of seven was very good. In No. 20 we have a girl who suffered from rheumatism with cardiac involvement and later albuminuria and bedwetting. Lack of self-confidence and a general anxiety state were however, brought about more probably by an unsatisfactory home environment, a difficult mother and an irritable father and earlier by harsh treatment at the age of three. Nos. 39 and 45 showed the effect of the strain of a succession of illnesses, No. 39 belonging to a family with a strong predisposition to stammer. No. 45 had the additional strain of an accident causing excitability and nightmares. An attack of bronchitis occurred shortly after this. The stammer disappeared when the health was fully restored. In No. 52 there are so many predisposing factors that it is difficult to assess their relative values. The chief line of attack was by thyroid treatment but the elimination of all conflict about the use of his left hand and of

anxiety about the supply of thyroid sufficed to take away any trace of worry and to help his general development. There had been some anxiety about the cost of medical treatment under the family doctor. No. 62 has a definite physical weakness, is dull and backward, and has an unhappy home.

In addition to those already referred to, relatively unimportant physical factors, as will be seen from the table, were noted in Nos. 8, 16, 17, 19, 21, 33, 51 and 55 and consisted of anaemia, enlarged cervical glands, cardiac debility, general debility with nasal catarrh and high palate, albuminuria, pyuria, anaemia and general ill-health when younger, respectively. It will be seen therefore that in the survey physical factors, whether past or present, actually occurred in 23 cases or 37% but could be further sub-divided in the opinion of the writer as follows:-

- | | |
|---|------------|
| 1. Main cause physical | 9 or 14.5% |
| 2. Physical factor important but not main cause | 8 or 12.8% |
| 3. Physical factor present at some stage but not considered important | 7 or 11.2% |

This question of the relative importance of physical factors is a disputed one, as already noted, but the majority of present day workers are inclined to attribute stammering in all their cases to psychological factors. A glance at the foregoing chart will show how the balance is in favour of this latter view in this survey. Moreover, in the group of 14.5% with physical handicap as the striking feature it was not possible to find one case where there was not a psychological factor also involved either as a definite reaction to illness or as a family predisposition. This is in marked opposition to Freda Parsons (1937, pp. 159-179) who describes her views in her book "The Gateway of Speech." She feels convinced that stammering is not due primarily to anything psychological or nervous but to a misplacement

of vocal tone acting like a lead pencil with no point or a fountain pen in which the ink is unable to find its way into the nib - causing the pen to scratch or stammer. She writes of the curing of stammer as the "oiling of the machine when rusty". In 85% of her cases she feels she can trace the misplacement of tone to physical illness and the rest to laziness of the speech machine - lagging behind the processes of thought. Her explanation of stammer following infectious diseases is in no way linked up with the general lack of confidence following illness and the anxiety of separation from home which seem to be strong factors in this survey, but is attributed to the child becoming throat conscious while the throat aches as it may do in scarlet fever, diphtheria or after tonsil operation. As a result of this consciousness and temporary diminution of speech she feels that mouth inertia and voice misplacement become fixed and permanent. A similar process is alleged to take place following tonsil and adenoids operations and treatment in her view resolves itself into a problem of re-educating speech and teaching the stammerer to pull the voice forward. She believes that to suggest relaxation is unsound and advocates concentration on speech. This was not confirmed by the present writer who found that concentration on speech practice increased the stammer and the general unhappiness and anxiety of the child. The only exception to this was the group of five children described under the heading "Delayed Speech Development". These were children of normal intelligence who required only special speech practice and sometimes breathing exercises. One would expect concentration to be good where the trouble is physiological and bad where it is psychological.

Faulty Environment and Family Predisposition - A study of the table shows the very strong predominance of faulty environment and family predisposition to stammering, in this

series 37 children (59.6%) showing this factor in varying degrees of intensity. The following analysis of this group shows the various causes of the faulty environment grouped together as far as possible. Many of the situations will be seen to be alike in broad outline if dissimilar in details.

<u>Unfavourable Environmental Factors.</u>	<u>Case number in the Series.</u>
Father shell-shock case and stammerer.	1 & 2
Father shell-shock case, mother excitable and has speech deformity, hare lip, and cleft palate.	41
Father heavy drinker, cruelty.	40
Father said to have had neurasthenia several times.	42
Father heavy drinker and deserter, imprisoned, plus neurotic mother.	7
Father deserter, unhappiness.	19
Step-father "nervous breakdown".	31
Father G.P.I. Disturbed home.	8
Two uncles in home with mental illness plus neurotic mother.	3
Father found in bed with strange woman in the house. Also poor type of mother.	13
Father "nervous breakdown" Unstable mother, plus harsh treatment from neighbours.	20
Father over-anxious (accident was main factor).	58
Financial insecurity prominent plus anxious mother.	9
Financial insecurity prominent. Also sister and lodger stammered.	35
Illegitimate. Very unsatisfactory home.	59
Parental friction and parents subnormal mentally.	62
Anxious unstable mother with Hodgkin's disease.	17
Unstable mother. Child born when she was 42 and she had facial paralysis, then puerperal insanity.	23
Mother overanxious and was slight stammerer.	24
Mother overanxious (main factor was child's health).	37
Mother unreliable and unsatisfactory. Has several illegitimate children.	33

Abnormal Family Groupings.

No mother, father away, unhappy with aunt.	26
In charge of deaf grandmother, parents both working all day.	27
Brought up by delicate, unstable grandmother. Two greatuncles stammer, one uncle lefthanded.	38
Lives with grandparents. Mother works. Father defiant type. Father away.	56
Failure to adjust to changes in environment.	18

Other Family Predisposition to Stammering and Instability.

Father and grandfather stammerers.	4
Father lefthanded, granduncle stammerer.	5
Father stammerer.	25
Father and all his family stammer, also sister. Uncle lefthanded.	39
Father and a younger brother stammerers.	44
Mother slight stammerer, father excitable.	48
Two uncles and an older sister stammerers.	14, 15
Two uncles stammerers.	21
Brother stammerer.	3
Uncle stammerer and cousin lefthanded.	43
Grandfather, aunt, cousin and mother stammerers.	49

In some of these children relatively simple changes in environment helped greatly. In others the unfavourable environment producing the neurosis was a thing of the past and explanatory talks and bringing up to the surface of difficulties had to be the line of attack. Gillespie, (1930, p. 807) in this connection draws attention to the very great influence which environment has on a child's mental processes and also to the plasticity of these processes. He found it a useful rule in investigations to attribute nothing morbid to congenital factors till investigation of environment and personal events had been ruled out. To him stammering is a habit disorder which

is the non-specific expression of a disturbed mental state, the natural atmosphere for a child becoming one of anxiety when he has been sufficiently long surrounded by an anxious atmosphere.

Fear and Anxiety. - Next in order of importance as seen from the chart comes fear and anxiety. 24 children or 38.7% come under this heading, many of these cases overlapping with the Faulty Environment group. It has been very difficult to assess the relative importance of the various factors but it will be seen that only a proportion of these children showing faulty environment were listed as showing a definite anxiety state and there were, of course, others who came under this heading of Fear and Anxiety whose environment was good. Seth (1934, pp 497-506) working at Edinburgh formed the opinion that at a conservative estimate, chronic anxiety was present in at least 50% of stammerers. Collins and Dreaver, (1936, p. 59) also working at Edinburgh found that the majority of the stammerers at the psychological clinic there show the same characteristics, nervousness, tension, sensitiveness, shyness, feelings of inferiority, feeling different to others and a desire to avoid speech situations.

With regard to the feeling of inferiority, Adler, (1924, p. 139) concludes from an analysis of stammerers that the speech defect is an attempt to withdraw, by means of passive resistance, from the superiority of others. It enables the child to say to himself "what would I not have accomplished had I not been a stutterer". There certainly seemed to be a sense of inferiority in many of these children. Moreover it was in no way specific and could not be said to have been secondary to the stammer. This fact lends support to Adler's view.

Causes of Anxiety States.

1. Definite mental illness in the home, apart from the child, e.g. shell-shock, G.P.I., "Nervous breakdown".	1, 3, 8, 31
2. Ill-treatment and unhappy home and "not wanted" reaction.	7, 19, 40
3. Anxiety due to separation from parent.	
(a) Separation from parent alone.	61
(b) Separation from parent plus worry about illegitimacy.	54
(c) Separation from parent plus shock and injury.	56
(d) Separation from parent plus shock and injury plus unwise treatment and frightening stories.	50
4. Over-anxious neurotic mother.	17, 23
5. Excitable child. Attention focussed on speech difficulties.	
(a) Mother's very bad speech - harelip and cleft palate.	41
(b) Mother's deafness plus excitability.	51
6. Illegitimacy plus unsatisfactory home.	59
7. Fear.	
(a) From rapid succession of illnesses.	5, 45
(b) From rapid succession of illnesses plus accident and repression.	10
(c) Associated with organ-inferiority (undescended testicle).	22
(d) From injury with repression.	11, 16
(e) From financial insecurity plus accident.	9
8. Parental indifference and probably over-rapid psychological weaning. Ninth child in family.	55

Injury and/or Shock. - An injury or a shock of some kind having apparently a definite bearing on the commencement or aggravation of the stammer occurred in 14 cases (22.5%).

It seems clear however, that there is too much tendency on the part of parents to blame accidents. It would seem that where an accident or shock played a part, it was only as it

were, "the last straw". A glance at the chart shows that of those cases where an injury or shock is recorded, viz. Nos. 4, 5, 9, 10, 11, 16, 18, 34, 44, 46, 50, 56, 58 and 60, all of them except 34 and 46 show other important factors. It is noteworthy that the only two cases where injury alone could be found as the cause of the stammer were in young children of six years old. No. 34 was pushed down the steps at his school and had his face badly cut. This led to stammering and night-terrors for a short period but he was treated within six months and was easily relieved. No. 46 was a similar type, the difference being that although the accident occurred at six years and he began to stammer then, he was eight before he appeared in this survey. Meantime his mother had taken him to a masseur who concentrated on respiration and general health measures without reference to the shock which seemed to be the cause of the trouble. Improvement was very slow until he grasped the significance of the accident. The importance of early psychological treatment is illustrated by the fate of these two children showing how much shallower and more easily removed the condition was at six months after the accident than at a two years interval. All these other children with a history of shock or injury fall clearly either in the Family Environment or Anxiety groups except No. 60. In this child there was the history of the mother having had an accident during the pregnancy. Also the child got a fright when at three years old he was pushed under a pump of cold water. There is also a family history suggestive of weak cerebral dominance and the boy is dull and backward. It seems likely therefore that the accident was only one of several causes.

Lefthandedness. - In view of the stress which had been laid on the question of the association of lefthandedness

and stammering, careful notes were taken of any tendency in this direction in the stammerer and his family. It will be seen from the chart that positive findings in this direction occurred in 12 of the 62 children (19.3%).

Three children had experienced a checking of the use of the left hand viz. Nos. 24, 27 and 30. In the case of No. 30 this seemed to be the important factor setting up a conflict accompanied by frightening dreams, the symptoms clearing up with great rapidity when the unrestrained use of the left hand was permitted. It is interesting however, to note that his brother passed through a similar cycle. That this forcing of the right hand in No. 24 was the final factor producing the stammer seems clear from the course of the case, improvement being immediate when arrangements were made with his teacher for free use of the left hand. Relaxation and talks tried before this only sufficed to improve his general bearing without affecting the stammer. There was in this boy however, a definite neurotic predisposition, the mother being an anxious type and having herself stammered. No. 27 showed the same emphasis on the forcing of the right hand as the probable cause, though here there was also the environmental factor, the boy being in charge of a deaf grandparent and the father and mother working all day.

There were six children whose history suggested a possibility of weak cerebral dominance and four of these were dull and backward viz. Nos. 1, 26, 52 and 60. No. 1 could chop wood and write with his left hand though he was not considered to be lefthanded and did not wish to be. No. 26 preferred kicking at football with his left foot but experimenting with his left hand yielded no results. No. 52 had been lefthanded but not strongly and after training with the right hand showed no wish to revert to the use of the left hand. No. 54 had an uncle and grandfather who were

lefthanded. She suffered from a slight left hemiparesis, the result of a birth injury. This would effectively mask any latent tendency to lefthandedness. Anxiety from other causes were present in this girl to a sufficient degree to set up a neurosis without any other contributing cause. No. 60 was another, who, though righthanded, kicked at football with his left foot and experimenting with the left hand was fruitless. The fifth case suggesting weak cerebral dominance was No. 57, but it was not very marked, though it is possible that this added to the general feeling of insecurity set up by physical illnesses. A family history of lefthandedness was noted in Nos. 2, 3 and 8. No. 2 was herself lefthanded but without any associated conflict as she has always freely used the left hand. Nos. 3 and 8 in spite in suggestive histories showed no sign of a weak cerebral dominance or a lefthanded tendency and the causative factors lay in other directions. There is therefore not much evidence from these cases to support the theory that confusion and conflict resulting from changing from left to right handedness or from a condition of weak cerebral dominance is a frequent factor though there is sufficient evidence to show that it must be remembered in going into the case histories. An occasional case of stammering may be found to have been precipitated by forcing a naturally lefthanded child to use his right hand. Blanton's view (1936, p. 87) that it is against all sound mental hygiene to train a lefthanded child to use the right hand would appear also to be a wise rule to give to teachers who frequently consult school medical officers on this point. It should be borne in mind however, as is pointed out by Adler (1929, p. 64) that it is rather the method of correcting a child to righthandedness than the actual changing over which tends to set up an antisocial bias and a sense of inferiority. Many children do actually

accomplish a change over without any untoward symptoms. If a lefthanded child is being changed over, a careful watch should always be kept for any signs of mental disturbance and special care should be taken to avoid scolding and blaming the child for clumsiness. Another aspect of this question of lefthandedness and stammering is discussed by Burt (1937, p. 269) when dealing with the aggressive neuroses. He points out that a common compulsion not ordinarily recognised as such is the tendency to use the left hand for actions instead of the right and stammering may also arise as a compulsive symptom in those persons in whom feelings of doubt and hesitation are unduly prominent. In this connection it is not without interest to note that Burt (1937, p. 270) found compulsion neuroses occurring nearly three times as often in males as in females. Inman, in a chapter contributed to Culpin (1924, p. 228) discusses lefthandedness and finds that independence and lefthandedness are frequently associated and he formed the opinion that both the development of lefthandedness and stammering were reactions of resentment to authority. Culpin (1924, p. 146) believed ^{that} this stammering reaction might spring from a hysterical or from a psychasthenic foundation and could in this respect be differentiated by whether the stammerer suffered embarrassment or not.

Imitation. - Proceeding next to the question of imitation upon which varying emphasis has been placed, it will be seen from the chart to have been noted as a possible factor in five of the cases viz. Nos. 1, 2, 14, 35 and 50. Appelt, (1911, p. 112 et seq.) believes that imitation is not enough and that the imitator must be in a condition to appropriate the symptoms. If, however, the imitator had already suffered from the same complexes as the stammerer and was thus in a condition to appropriate the symptoms of the latter, the case is different and becomes one which may

be regarded as hysterical identification. Adler (1929, p. 11) discusses imitation laying stress on the fact that the only symptoms imitated are those which are alignable to the neurotic goal of superiority. No one, he believes, ever imitates anything which does not in some way fit into his purpose. McAllister (1937, pp. 190-200) finds room in her list of primary causes for imitation and Fletcher (1928, p. 31) pleads for interest and attention to be given to the problems of stammerers because of the dangers to other children from imitation. Stuttering, he says, may and often does have its genesis in the playful act of imitating a stuttering child.

Bluemel (1930, p. 46) believes that when imitation appears to have been the cause it is actually not conscious imitation but rather that the imitator experiences bewilderment giving rise to inhibition and fear. This causes him mentally to withhold the image of the word and results in a transitory auditory amnesia.

The possibility of imitation was not considered in this survey unless there was someone in the home stammering at the time of onset. In cases nos. 1 and 2, brother and sister, it seems likely that the sister A.B. did actually imitate her brother as he had been stammering for two years before she began. Also whereas there were many factors involved in the case of the brother who was a bad stammerer, no other factor other than a family predisposition could be found in A.B. Her stammer also was a mild one and disappeared entirely when she went to work. Although the father stammered it was only when excited. Imitation of her brother is believed to be the cause in this girl in the absence of any other possibilities. When we consider No. 14 it is difficult to imagine how a backward boy with an I.Q. of 76 and a general defective development of speech could avoid a stammer when an older sister in the house and two uncles stammered. Imitation undoubtedly played a part here but the

condition in which to appropriate the symptoms was obviously present. In Nos. 35 and 50 imitation was blamed for the stammer by the patients and their parents. In No. 35 the conditioning was brought about by poverty and insecurity and in No. 50 by shock from injury and separation-anxiety. Imitation in this series is therefore unimportant and when it has appeared to be a prominent factor the stammer seems to have been very superficial and easily helped by relaxation and general advice on change of environment.

Backwardness and Delayed Speech. - The last group which falls to be considered is that of mental backwardness and delay in speech co-ordination. 11 children or 17.7% came into this category of children who stammered from the commencement of speech. Of these 11 children, 5 were of normal mentality viz. Nos. 6, 12, 15, 36 and 47 and a judicious combination of special voice production, reading and breathing exercises sufficed for them. This is the type of case which leads many people to believe that stammering is not a neurosis because no neurotic symptoms can be found in these children. They fall into quite a different category in this respect from all the other stammerers. They showed an abnormal difficulty in speech development and co-ordination without any other sign of backwardness and the good results obtained in the schools in these children was in marked contrast to 5 others under this heading who in addition to a delay in speech development were sub-normal mentally coming under the "dull and backward" classification. These were Nos. 1, 13, 14, 29 and 60 and were the worst failures of this series. They were bad speakers in varying degrees apart from the stammer and poor types physically. Where there was probably conflict and uncertain behaviour originating in a feeling of mental inferiority as in Nos. 1 and 60, it was difficult on account of the sub-normal mentality, to get much response. The last case to come into

this group, No. 43, was an unusual one in that unilateral speech development delay took place in spite of high mental ability and the stammer was present from the beginning of speech but in this child there was a tendency to hyper-excitability and family history of stammering and instability.

SECTION VI.

CONCLUSION WITH REFERENCE TO
FUTURE OUTLOOK
AND
TREATMENT.

CONCLUSIONS WITH REFERENCE TO FUTURE OUTLOOK
AND TREATMENT.

1. Stammering in school children must be tackled as an individual problem and each child can and ought to be dealt with singly. This can be done at a school clinic provided that the necessary knowledge and sympathetic understanding are available and time permits.
2. Stammering is a neurotic reaction and anything which gives a child a feeling of inferiority or of chronic anxiety or conflict may be the cause. These states were found to be produced in varying degrees of relative importance by prolonged illness, mental or physical retardation, weak cerebral dominance, interference with natural lefthandedness, poverty, parental friction, repressed fears, shock and in fact, by any undesirable environment, especially if occurring in a child with a family history of mental instability.
3. The presence of more than one of these contributing causes was found in most of the children.
4. The reason why the reaction should take this form so frequently in school children is not certain. It may be because emphasis is so frequently placed, during school life, on the importance of good speech, focussing attention on this medium of intercourse. Imitation plays only a small part in a few cases in localising the neurosis to speech.
5. The treatment resolves itself into approach from three aspects:-

a. Physical

b. Psychological

c. Sociological

Without taking all three into account no satisfactory result can confidently be expected.

6. General physical treatment should never be neglected as, apart from toning up the child and helping him physically, it puts him in a confident and suggestive frame of mind.
7. The keynote in the approach to treatment, however, lies in the influence of the family on the child. This influence may be unfavourable if it fails to satisfy the child's primary need for a feeling of security, love, a sense of its own value and freedom to experiment for itself. It may also be unfavourable through the presence of a family predisposition to instability, neurosis or mental disease.
8. Treatment, therefore, is concerned often with the maladjustments and frictions of the parents and their education in the child's psychological needs.
9. Deep psycho-analytical methods were not found to be necessary or even indicated in the majority of these children and there are also difficulties in using ordinary association tests with stammering children. When they are asked to speak there seems sometimes to be not only a blocking of actual speech but also some blurring in the flow of ideas. Where this is the case it is possible that analysis might have revealed more of the psycho-neurotic background.

Improvement, however, resulted without this.

10. Sympathetic talks arranged at regular intervals and backed up by helpful understanding on the part of the child's head teacher and class teacher were, apart from parental and environmental adjustments found to be the most important therapeutic methods.
11. Relaxation was found to be of use in almost all the children, and, where stammering classes succeed, it would seem to be in so far as they teach this satisfactorily. It was possible to instruct children in relaxation at the school clinic (see Appendix D. for details of methods used).
12. It has been shown that much can be done to help these children. With an increase in understanding, on the part of parents and teachers, of the psychological needs of children, we may look also with confidence for progress in the prevention of stammering.

APPENDIX A.

BLANK FORM AS USED IN EXAMINATION.

NO.

SCHOOL CLINIC, BLACKPOOL.

NAME:

ADDRESS:

SCHOOL:

AGE:

DATE OF FIRST EXAMINATION:

TYPE OF DEFECT:

ASSOCIATED PHYSICAL DEFECT:

Teeth

Nasal Catarrh

Tonsils and/or Adenoids

Palate

Vision

Other Physical Defects

NOTES ON GENERAL HEALTH:

NUTRITION:

E.

N.

S.

B.

EDUCATIONAL STANDARD:

AA.

A.

D. & B.

FM.

NUMBER OF CHILDREN IN FAMILY:

CHILD'S POSITION IN FAMILY:

ALLEGED CAUSE OF ONSET:

AGE OF ONSET:

PSYCHOLOGICAL FACTORS. (Environment, emotional disturbances, parental attitudes, loneliness, malnutrition, family history etc).

GENERAL OBSERVATIONS:

APPENDIX B.

SPECIMEN FORM COMPLETED.

NAME: L.W.ADDRESS: 22, H----- St., Blackpool.SCHOOL: Devonshire Rd. Junior Boys' Blackpool.AGE: 9 years.DATE OF FIRST EXAMINATION: 5 . 11. 36TYPE OF DEFECT: medium degree of stammer accompanied by anxiety and oversensitiveness. Gets worse when other boys laugh at him. Confined to organs of articulation.ASSOCIATED PHYSICAL DEFECT:Teeth Satisfactory.Nasal Catarrh -Tonsils and/or Adenoids -Palate Normal.Vision Hypermetropic Astigmatism corrected gives R 6/12 L 6/6.Other Physical Defects -NOTES ON GENERAL HEALTH: Rather pale worried looking child. No definite illness.NUTRITION: E. N. + S. B.EDUCATIONAL STANDARD: AA. A. + D.&B. FM.NUMBER OF CHILDREN IN FAMILY: 2. (9 pregnancies).CHILD'S POSITION IN FAMILY: 2nd.ALLEGED CAUSE OF ONSET: Attack of measles, aged 5 years.AGE OF ONSET: 5 years.

PSYCHOLOGICAL FACTORS: (Environment, emotional disturbances, maladjustments, lefthandedness, bedwetting, family history etc).

Elder brother had chickenpox and measles shortly after starting school and then stammered. Environmental history very unsatisfactory. Father heavy drinker. Continual rows in home during L's first year of life. Deserted when L was just over one year. Was imprisoned for desertion and has not been heard of since left prison. Mother worried and anxious, works during season but not in winter. Leaves L. with neighbours and confessed on close questioning that they spoiled him at times, giving him beer and too many sweets etc. and at other times neglected him. Although she only has two children living she had nine pregnancies - some miscarriages and some died in infancy. She was very vague about causes of death but thought it was a fit in one case and meningitis in another. No syphilitic history.

L. has appearance of chronic anxiety and seems to be of sensitive psychasthenic type, dreading being noticed or laughed at. Has no recollection of his father. Obviously picking up atmosphere of anxiety from mother and not feeling that he gets enough real consideration from her. Mother advised to concentrate on making L. feel important and cared for and to attach him to Scouts or a Choir or other activity where he would have companionship when she was working. L. says he dreams a lot but cannot remember his dreams. Mother says he cries out during them occasionally. Instructed in relaxation and promised to do this every night.

10. 1. 37 Interviewed. Rehearsed relaxation. Doing very well. Looks and feels better but still stammers definitely. Has joined the Scouts. Has developed a preference for handwork even liking sewing and knitting. Fond of writing. No evidence of weak cerebral dominance. Says his dreams are pleasant and he finds himself laughing when he wakes up. Anxiety state definitely relieved. To practise reading aloud now.

3. 5. 37 No stammer discernible at interview. Mother reports that he occasionally stammers.

1. 3. 38 Had been quite clear since last visit until recently there was a recurrence though not severe, coincident with a severe outbreak

of "nerves" on the part of the mother. Boy brought to clinic by an aunt who said that the mother had recently been taken away to a mental hospital on account of a mental breakdown associated with the menopause. The boy is now in the aunt's care. She is a pleasant, well-balanced person. She gave the opinion that the boy's condition is directly associated with the mother's illness and that the mother had been very difficult to deal with before she was taken away.

GENERAL OBSERVATIONS:

1. Early unhappiness and instability of parents.
2. Chronic anxiety state.
3. Stammer precipitated by attack of measles.
4. Relapse coincided with the mother's breakdown.
5. Outlook good.

APPENDIX C.

SUMMARY OF NOTES ON 62 CASES.

CASE NO. 1

J.B. M. 12 years. Very severe stammer, possibly the worst of this series. Tonsils and adenoids removed some years ago but not considered to have any bearing on the case. The stammer commenced at the age of 6 and parents thought it became worse after an attack of whooping cough shortly afterwards. Educational standard is low, the boy belonging to the "dull and backward" class. The Head Teacher gives a very poor account of him saying he is one of the worst boys in the school in every way. He has been twice before the police, once for stealing a bicycle and once for stealing a bottle of milk from a doorstep. The father has stammered when excited ever since he was shell-shocked during the war. He never stammered before that. One sister, A.B. has a stammer and is No.2 of this series. A.B. is lefthanded as is also a brother G.B. who does not stammer. This boy is the second of four children, the eldest being A.B. the other stammerer. The mother was a helpful, pleasant woman, anxious to do anything in her power and quite responsive to all questions. She gave it as her opinion that J. was not really a bad boy but was weak and was led away by other boys and came before the Courts on this account. This was probably partially true as the ringleader, an epileptic boy of very uncertain temperament was known to the M.O. Examination of the boy gave the impression that he was anxious to help himself but was living in a world which was more than he could cope with. Two months after the initial examination he was found to be still stammering as badly as ever although his behaviour and general poise seemed better as the result of practising relaxation and unburdening his anxieties. He admitted at the second examination that he was always having frightening dreams in which he seemed to be fighting

everybody and his mother corroborated this by stating that he often talked in his sleep. The boy was then closely questioned about the use of his hands because of the left-handed family history and he admitted that although he was right-handed he often used his left hand and that he could chop wood and write with his left hand. Weak cerebral dominance may have played a part in producing instability and instructions were given for him to experiment and to use the left hand more if he felt inclined to do so. Circumstances proved too strong however, for him and in spite of a slight increase in spells of freedom from stammering he came before the police shortly after this and was committed to an approved school in Cheshire. The Officer who took him there reported that he only stammered at times on the journey and showed no anxiety about the trend of events. On account of the mental inertia and backwardness the out-look in this case is probably not good although a further response may be hoped for if sympathetic treatment is given in the new environment.

CASE NO. 2.

A. B. Sister of Case No. 1. Age 14 years. Lefthanded. Stammer classed as slight. This girl is the eldest of the family and has quite a good school record with average mentality. The stammer commenced at the age of 10 and there was no cause alleged by the mother unless imitation of the father and of J.B. who began the stammer two years earlier. This girl was encouraged to be definitely lefthanded and to sing in the school choir. Also she practiced relaxation. By the time she left school a few months later she was almost cured and the final report received a year later is that she is working in a laundry, is happy, and has ceased to stammer, and always uses her left hand.

CASE NO. 3.

V.G. Age 13. F. Definite stammer of medium intensity. A largely made girl with a slight kyphosis and a highly arched palate and, generally speaking, a poor specimen physically. Has attended school clinic from time to time with complaints of pain in the breasts, breathlessness etc. She is the eldest of two and started to stammer at the age of 5. She was brought up in the same house as two uncles who both had very bad mental histories and are both now in asylums. Since infancy she had watched every stage of their illnesses. One uncle had severe malaria and became queer and then became quite mentally deranged during a malarial attack. The other had fits associated with his dementia. The girl had an anxious repressed look and it seemed obvious that she had suffered prolonged psychological trauma. Family history suggests there was an inherent mental instability. The mother seemed rather excitable. Both V. and her mother were encouraged to talk over their worries, and V. was given special corrective exercises for the kyphosis, and cod liver oil and malt. She undertook also to practise nightly relaxation and the Headmistress put her in the school choir. She is improving. The breathlessness and pains were probably hysterical in origin and have certainly cleared up as the result of the talks. Chronic anxiety from early shocks is the most important cause of the stammer.

CASE NO. 4.

K.L. Age 6. F. Definite medium stammerer. Normal physically except for pallor and slight degree of anaemia. Is the eldest of two children and began to stammer at the age of three. She was taken to see Father Christmas and got a fright and cried a lot and the parents allege this to

be the cause. Investigation of the family history showed a strong predisposition to stammering, the child's grandfather and father were both stammerers. The class teacher gave a good report of the child's school work and promised to co-operate in cutting out oral work and relieve all strain and stress. Artificial sunlight and calcium therapy were begun and nightly relaxation. Two months later the mother reported great improvement in the stammering except for a short spell following influenza. It seems clear that the tendency to stammer will remain in this child but it can be successfully combated. Later reports showed that the stammer disappears completely for spells only reappearing when illness adds extra strain. Shock was a precipitating cause.

CASE NO. 5.

H.E. Age 12. (M). Definite medium stammer. Rather below average in school work. Had a period of enlarged tonsils and adenoids and nasal catarrh but this cleared up following tonsillectomy. Physical condition not altogether satisfactory as there was some anaemia and nutrition was slightly subnormal although this was not due to lack of food. The tonsil operation was performed at the age of 6 followed shortly afterwards by appendix operation and the stammer was noticed when he came home from hospital. While in hospital he never cried at all and the mother stated that in her opinion his fears "came out" in the stammer. Family history is suggestive as the father is lefthanded and the granduncle stammered. The boy seems somewhat repressed and it is likely that the hospital experience did actually precipitate the stammer when there was already a neurotic tendency. In case there

should be latent lefthandedness he was encouraged to experiment with his left hand and find out what suited him best. He was given an iron tonic and relaxation practice. His mother of her own accord took him to a school of elocution where he has commenced exercises in breath control and sound production. Later examination showed that weak cerebral dominance did not appear to be a factor in this case and no desire to use the left hand was manifested on experimenting. Physical health was now excellent. As the boy grew older however, he appreciated the significance of his repressed fears more and gained confidence in himself and all traces of anxiety disappeared. A year after leaving school he was working happily as a butcher's boy but still stammered considerably and was still attending elocution classes, where, however, it seemed that too much of his attention was being focussed on the speech at these classes. The outlook seems good and the boy is exceedingly appreciative of efforts to help him and is glad to return to the clinic to report progress.

CASE NO. 6.

J.H. Age 6. M. Slight stammer. Some days does not stammer at all or only when he has to answer the register in school. Normal physically and of average mentality. Is an only child. Nothing significant in the family history and no appearance of anxiety or other nervous affliction. His main difficulty seemed to be to regulate his breathing and his class teacher undertook to give him breathing exercises which she felt helped him. The condition is probably nothing more than a slight prolongation of the normal physiological hesitation in speech development which he is rapidly overcoming. Special breathing exercises and practice in breath

control appear to be meeting his needs, together with speech practice. Six months later he was examined at the clinic for slight tonsillitis and speech was normal.

CASE NO. 7.

L.W. Age 9. M. Severe stammerer. Suffers from chronic bronchial catarrh and visual defect which has since been corrected. Is the second child in the family and his elder brother stammered for about a year when he started school and had chickenpox and measles in the same year. The patient himself started stammering at the age of 5 shortly after an attack of measles. Is a sensitive boy of average intelligence and is very conscious of his affliction, volunteering the information that other boys laugh at him and that then he gets worse. Environment seems to have been very bad from the beginning. The father drank heavily and after great unhappiness at home he deserted the mother when L. was one year old. He was imprisoned for desertion and has not been heard of since he came out of prison. The mother seemed rather under the weather with her troubles and stated that she works in the summer and leaves L. with neighbours and that last summer he was with people who did not know how to treat him and gave him beer to drink and unsuitable food. She had had nine pregnancies but seven of the children were dead but she could not tell what they had died of and thought it was meningitis and fits in two of them. No syphilitic history given. She was advised to concentrate on making L. feel that he was of some importance and to look after him and attach him to scouts or a choir or other activity where he might have some companionship. The boy was to practise relaxation and to try to remember his dreams and to do some handwork in his spare time. Two

months later he said that he always dreamt nice things and often laughed in his dreams. He said that he had been doing sewing, knitting and writing and liked them all and that he always remembered to relax for twenty minutes every night. He looked and felt better and spoke better though there was still room for improvement. Four months later no stammer was discernible. Ten months later the boy was experiencing a temporary set back coincident with a severe outbreak of "nerves" on the part of the mother who was taken away to a mental home for a nervous breakdown associated with the menopause. It seems clear that the boy's stammer is related to his environment and the outlook would be very good but for this. This is now being changed as he has now gone to live with an aunt.

CASE NO. 8.

J.B. Age 8. M. Definite medium stammerer. Worse in school. Rather anaemic boy. Average intelligence. Gained weight and improved rapidly physically on artificial sunlight and iron tonic. Wasserman reaction negative. Seemed to be very bright in his suggestions and ideas and volunteered the information that he thought he started stammering at the age of five by making fun of a boy who stammered. Is a nail biter. Is the eldest of two. Says he worries about school and is not very fond of school though actually he gets on quite well judging from Head Teacher's report. His father died of G.P.I. when the boy was three. He had manifested the usual grandiose ideas and before he was taken to an asylum he drew all his money out of the bank and spent it lavishly. The boy was given instruction in relaxation and he joined the cubs. These measures coupled with the general physical improvement have been sufficient to give him confidence and the stammer is

now not perceptible at all in general conversation fourteen months after original examination. Chronic anxiety produced by father's behaviour probably conditioned this boy and imitation actually precipitated the stammer.

CASE NO. 9.

J.D. Age 12. (M). Medium stammerer. Average intelligence. Small eager type of boy, second in a family of four. Father is an actor who has a canary choir and is frequently out of work. Mother is highly strung and is said to have a "nervous heart" No other family history of nervous troubles and boy always feels well and does not worry unduly about his stammer. He says he does not dream a lot but when he does his dreams are always pleasant. His headmaster promised to co-operate in encouraging the boy to relax and enjoy his school work and cut out strain. He has improved considerably and practises relaxation every night. He is on cod liver oil and malt to make up for any deficiency in the diet at home, though the home seems to be happy and adequate in spite of the precarious livelihood of the father.

The condition appears to have been precipitated by a severe head injury which occurred at the age of five and was immediately followed by the development of the stammer. The prospects of a complete cure with perseverance in relaxation seem good. There is no trace of lefthandedness in the boy or his family.

Later examination showed progress to have been satisfactory. A year after treatment commenced the boy was bright and happy with only the faintest occasional hesitation. Home conditions were more secure as the father was in regular work. The boy had taken up Xylophone playing and was full of hope of a stage career.

CASE NO. 10.

G.D. Age 13. (M). A healthy boy physically but was not always so. Average intelligence. Third in a family of four. The mother is very excitable and states that before this boy was born she was subjected to great strain as her own mother was very ill and was living in the same house. G. had pneumonia at the age of three followed by a slight attack of meningitis. At five he came home with a fractured elbow and general severe bruising and it was never known what had happened to him. He was ill for weeks and all memory of the accident was suppressed and he started to stammer. Actually at the time of the first examination the stammer was only bad when he got excited and was thought to be improving. He gave as his own reason for the stammer that he copied a boy in the same street. He was able to appreciate that this was not the cause and understood generally that he must get rid of his anxieties and repressions. He likes handwork and singing and his mother has undertaken to see that he gets opportunities in this direction. A year after leaving school this boy was examined and the result of treatment was found to be excellent. He is in regular employment in a school and he said "nobody knows that I ever stammered." His general mental state and physical health were now very good.

CASE NO. 11.

F.R. Age 13. (M). Very co-operative type of boy above average in intelligence. Nutrition excellent. Tachycardia present. An only child. Good singer and sings in a church choir. Good with his hands and keen on engineering and he wants to be an airman. Likes oral work at school and shows no desire to have it stopped. No trace of neurosis in the family history. While playing with an engine at the age of

6 he got his fingers behind an electric plug and got a severe electric shock. This was felt definitely by the family to be the cause of the stammer. Instructed in relaxation. Understands the principles of relaxation and is improving greatly under this treatment.

A year later it was found that the stammer had gone except in moments of great strain and excitement. The noticeable feature about this boy was his high intelligence and ability to grasp the idea of repression and tension following the electric shock and his co-operation in attempts to relax. He received great assistance from his teachers and is now preparing for a Civil Service career.

CASE NO. 12.

H.G. Age 12. (M). A pleasant, rather sensitive boy of average intelligence, fourth in a family of five. Medium stammerer, since commencement of speech. Nothing significant in the family history and no appearance of anxiety or other neurosis. He was given relaxation and reading and voice production exercises and encouraged to sing in a choir. Under this treatment he is rapidly improving. His headmaster is helping him with the treatment and has stopped all oral work. The condition appears to be a prolongation of speech hesitation and has no apparent neurotic foundation.

CASE NO. 13.

C.J. Age 12. (M). Severe stammerer. Poor type both physically and mentally. Had broncho-pneumonia at age of five and has been subject to bronchitis always though this is less frequent now and last winter he escaped altogether when he was taking cod liver oil and malt regularly. Has been a bed-wetter since the age of 8 years. Has been subject to emotional shocks and unhappiness at home, the

mother found her husband in bed with another woman in the home and C. was told all about it. His mother states that he worries quite a lot about her but the boy had no appearance of anxiety - he was rather of the lazy type. The mother states that the father left home but is now back living with her but she "does not know what he is up to" and has decided not to care.

In addition to general tonic treatment the boy was given Ephedrine Hydrochloride for the nocturnal enuresis and was kept under supervision at the Clinic.

He seemed too lazy to practise relaxation nightly or co-operate in any way and after some months there was no improvement. He was then spoken to again seriously about his conduct and was given written instructions how to relax. He is the second child in a family of three. The youngest child is feeble-minded and a physical defective. Later the father returned home and the mother seemed to take it all as a matter of course. She is rather a difficult person to deal with and made a lot of fuss about the requirements of the younger feeble-minded child yet she would not make the effort to help this boy and in view of this and the general backwardness, the outlook is not encouraging.

Something was achieved perhaps in some talks to the boy when the mother was not present, in undoing the effects of the earlier emotional shocks. The bed-wetting was relieved. So many factors were present in this case that it is difficult to assess the real cause but general backwardness and an unhappy home environment seemed to be the predominating factors.

CASE NO. 14.

T.H. Age 6 (M). Medium stammerer. Is dull and backward (I.Q. 76). Speaks with stammer and lisps. Had operation for tongue-tie at 9 months and the tonsils and adenoids were

removed a year ago. Is the second child in a family of two, his older sister, C.H. (next in this series, No. 15) stammers. Two uncles stammered, one is now cured and the other still stammers. He is practising the sounds in which he has difficulty, particularly "k" and his teacher is bringing him on with handwork and special tuition. The mother feels that he copies his uncles and sister. Looks more like a prolongation of the physiological stammer associated with the backwardness and with the superadded factor of imitation. Some progress in speech was found to have been made in this case a year after the initial examination but the speech defect appears to be definitely associated with the mental backwardness and the outlook is not very good. He is in a special class for backward children.

CASE NO. 15.

C.H. Age 13. (F). Slight stammer. Above average in intelligence and a good specimen physically. Slight visual defect corrected with glasses give R6/6 L6/6. Like her brother T.H. (Case No. 14) she stammered when starting to talk. Two uncles stammer. No history of frights and no evidence of lefthandedness in any of the stammering members of the family. Arrangements made to sing in a choir and to practise relaxation. Improving. A year later the girl was found to have left school and to be free from stammer. Her Head Teacher reported that during the last few months at school no stammer was noticed. She is now employed in the office of a large baker's shop and is doing well and is being encouraged by her employers to take up shorthand and typing with a view to undertaking greater responsibility.

CASE NO. 16.

F.H. Age 9. Medium stammer. Bright boy above average intelligence but rather delicate. Slight visual defect.

Cervical glands palpable. Elder of two children from rather a poor home. Mother very excitable but pleasant. Saw a boy being run over three years ago, got a severe fright and ever since then has stammered and at times wakes up screaming at night. Sometimes on these occasions he wets the bed. At the Clinic he was encouraged to talk over his fears. There was a definite reluctance to discuss the accident and a tendency to repress memories of it. He was helped through this stage and was given instructions in the practice of relaxation and an explanation of his condition. He was advised to join the Boy Scouts, which he did. Co-operation of both child and mother was excellent and within a few months the result was very good both in speech, peaceful sleep and general well-being. Under artificial sunlight treatment the physical condition improved and the glands were no longer palpable. Shock with repression and physical disabilities are the important factors in this boy.

CASE NO. 17.

K.S. Age 8. (M). Medium stammer. Normal nutrition and average intelligence, subject to bronchial catarrh and showing slight cardiac irregularity probably of nervous origin. He is fretful and bad tempered at times and at others quite cheerful. The mother seems to be of the same type as she was reported by the Headmaster of the boy's school as a difficult parent who caused trouble by writing erratic notes to school.

When interviewed at the Clinic she was very pleasant. She admitted that she worried a lot about the boy and cried a lot over him. The father died of heart trouble following pneumonia and there is a step-father who is a journalist and is only home at week-ends. K. said he liked his step-father. One uncle is lefthanded and K. although not lefthanded can

only hop on his left foot and not on his right, suggesting weak cerebral dominance. Under general tonic treatment he improved rapidly physically and relaxation exercises rendered the heart beat normal in rhythm and rate and improved the stammer. Considerable room for improvement in the speech still remained however and the mother had to be spoken to about her attitude to the boy. He was also encouraged to use the left hand when he wanted to. He tried this but no special aptitude was shown for using the left hand and this idea was abandoned as yielding no results. Some months after the first examination and just as his general health appeared to be improving greatly he suddenly developed an acute appendix and had to be operated upon within twenty four hours of the onset of the abdominal pain. The operation was very successful and there was only a slight setback in the child's outlook and stammer. Meanwhile the mother was diagnosed as suffering from Hodgkin's disease and was taken away to Manchester for treatment. At the last interview the boy was brought by the step-father who was a very good type and was able to throw some light on the attitude of the mother to K. All her subconscious worry and illness was apparently projected on to K. and according to the step-father she "made a god of the boy" and made a "fool of herself" at the school and the boy at an earlier stage had worried about the trouble his mother made at school. The chief cause of the boy's stammer seemed therefore to be reaction to an overanxious mother.

CASE NO. 18.

J.D. Age 8. (M). Medium stammer. Good specimen physically but rather a nervous type of child. Average intelligence. Went to school in Wigan. Almost immediately had his tonsils and adenoids removed, then came to Blackpool and had to start in a new school, all happening while he was in his sixth

year. He is the type of child who is always better during the school holidays although he has no particular worry at school and says he likes school and his teacher. Occasionally he wets the bed and his mother lifts him every night to avoid this. Urine normal. Is very good at handwork, especially modelling in plasticine and was encouraged to develop this side of his work.

He commenced stammering shortly after coming to Blackpool and his mother is firmly of opinion that it was "starting a new school" which caused it. There is no neurotic family history and it seems that the combined strain of two different schools and a tonsil and adenoid operation proved too much for his powers of adjustment. This is borne out by the fact that under supervision and relaxation he is settling down and improving rapidly.

CASE NO. 19.

M. E. Age 12. (F). Severe stammer. Is rather a tall, highly strung, anxious, thin girl, with highly arched palate and nasal catarrh. Intelligence average. No neurotic family history. Does not dream. Shows definite anxiety state though does not recognise the cause. This appeared to be that the home conditions had been unhappy, culminating in the father deserting. Afterwards an agreement was signed for him to pay 10/- a week but this payment was very spasmodic. M. is fond of her mother and gave the impression that she shares in the general unhappiness. She reacted well to the tasks given though had difficulty in achieving complete relaxation. A cousin of 14 with whom she is very friendly promised to help to encourage her to take time when talking as she tended to rush over all her words and managed much better with some

sympathetic encouragement. The result of perseverance along these lines was excellent, so much so that at a subsequent visit to the Clinic for a minor injury, it was entirely forgotten that she had been a stammerer.

CASE NO. 20.

E.T. Age 13. (F). Severe stammer. Anxious type of girl, of average intelligence, who stammered from the age of 3. Suffered from rheumatism with some form of cardiac involvement when aged 9 but this has passed off. At the examination for the stammer a history of bedwetting was obtained and a cloud of albumen was found in the urine. She was referred to the family doctor for treatment. After this treatment she went off to a herbalist who is now professing to be treating the stammering and the bedwetting. The whole atmosphere of the home is not conducive to successful treatment and the father has had a nervous breakdown and is irritable and there is too much tendency to change about and not persevere with the treatment. Altogether an unsatisfactory case and treatment at the Clinic has been discontinued meantime till the girl is prepared to co-operate. The probable cause of the anxiety state is harsh treatment which the girl received when aged 3-4 years. At that time the mother worked and E. lived with a woman who was always scolding her. The stammer commenced about this time.

CASE NO. 21.

T.D. Age 12. (M). Severe stammer. An active, keen boy of average intelligence who belongs to scouts and sings in a church choir. His mother's two brothers stammered slightly but grew out of it. Otherwise there is no known

neurotic tendency and no cause could be found for the stammer. He had stammered since he was about 7 but had been improving without any special measures though he stammered badly at the first interview. A few simple talks and a couple of months practice in relaxation were sufficient to dispel the stammer so that it now disappeared for weeks at a time. His mother was rather deaf. She was very enthusiastic about his affairs and promised to help him to take things more easily. It might have been that his numerous activities imposed too great a strain upon him as he had been out four nights a week between his scouts and choir activities. The mother's deafness may have been an additional cause of strain associated particularly with speech.

CASE NO. 22.

D.B. Age 11. (M). Medium stammer. Average intelligence. Suffered from chorea when aged 8. Has a right incompletely descended testicle which causes pain in the inguinal region at times. Surgical advice given a year ago was to leave things alone for a year or two. The stammer only commenced at the age of 10 and the alleged cause was imitation of a friend with whom he had started to play. His only brother who is 10 is a bed-wetter. The incomplete physical development may be the cause of the instability in this boy, organ inferiority causing lack of self-confidence. He can kick at football equally well with both feet but there is nothing else in the history to suggest weak cerebral dominance. In case of the latter factor he has been encouraged to use both hands and feet equally if so inclined. He was also advised to see the Surgeon again about the physical condition. Later he returned to the Clinic with a septic throat and another attack of his chorea. The

hope of improvement appears to depend in this boy on building up his general health. Meantime there is no improvement in his stammer and he has had to be referred to his family doctor for treatment for his chorea. Further investigation of this case ceased as he left the district and was lost sight of.

CASE NO. 23.

C.W. Age 8. (M). Slight stammer. Keen child above average in intelligence. Slightly anaemic. Said to be irritable at times. Is the youngest of a family of seven and the mother was forty-two when he was born. During the pregnancy she was ailing all the time and had a facial paralysis. After the birth she said she had "nervous breakdown" (? puerperal insanity). She is still jumpy and excitable. There is no other neurotic family history and no lefthandedness. An explanatory talk and the boy's active co-operation in relaxation exercises sufficed to produce such a good result that the mother was able to say at the end of three months that she has forgotten sometimes for weeks at a time that the boy had ever stammered. This is a case of an intelligent child reacting to mother's anxiety state.

CASE NO. 24.

E.G. Aged 10. (M). Medium stammer. Excitable, nervous boy with rapid heart beat. An only child. Mother very anxious type who had herself stammered as a girl. She was told to practise relaxation nightly along with the boy, but reported after two months that she saw no improvement. It was felt that the mother's sympathy had not been aroused. Actually there was some improvement in the general bearing and in the heart beat but the speech was unaltered. It was

then discovered that E. was lefthanded till he went to school when he was changed over and was forbidden to write with his lefthand. He could now write equally well with both hands but could not draw so well with the right hand. The mother at once reacted to this suggestion and said she felt sure that the cause had now been found. It seemed clear that the additional strain superadded to the neurotic tendency had actually produced the stammer. The Headmaster and class teacher agreed to co-operate in attempting to re-establish lefthandedness with the least possible strain. When he left the junior school a year later the stammer was reported by the Headmaster to be cured.

CASE NO. 25.

P.B. Age 9. (M). Medium stammer. Rather on the dull and backward side in school work, but probably this is due to frequent absence from school. Had measles and pneumonia at age 2, then tonsillectomy and two mastoid operations. At 6 years he had scarlet fever. According to the father "he never was well until he was seven years old". Father is a policeman and stammers slightly himself when excited. Boy was rather pale and slightly anaemic. Vision is R6/6 L6/12. The defect is not due to an error of refraction. Physically he reacted well to a course of artificial sunlight and mentally to relaxation methods. The slight predisposition to stammer inherited from his father and the rapid succession of serious illnesses was enough to cause the defect in this boy and the outlook was felt to be extremely good. In fact it proved to be good, for a year later the boy was brought by his father to the Clinic for interview and he did not stammer at all although his father stammered slightly. Imitation may have been a factor in this child but if so, it was not a strong one, since he is cured and his father still stammers.

CASE NO. 26.

W.S. Aged 12. (M). Severe stammer. Dull and backward boy. Could give very little account of himself and there was no parent present at the examination. He said his father lived at Rochdale and his mother was dead and he lived with a sister aged 28 who worked every day and was not available for interview. He was asked to practise relaxation with a more intelligent boy in his class but made no effort and no improvement. The sister was then got hold of after some difficulty and she gave the following story - that she was a half-sister of W. and that the family consisted of herself and sister of her mother's first marriage and W. of the second marriage. When W. was three months old the mother died and all three went to live with an aunt. They were there for 18 months during which time the baby was persistently treated without kindness or sympathy of any kind. Then it proved too much for them and all three left the aunt and started for themselves with the help of the Inspector of the N. S. P. C. C. . Since then the boy has been happy. The half-sister is lefthanded and W. is not lefthanded but suggests weak cerebral dominance as he liked to kick at football with his left foot. The likely effect of the early unhappiness was explained to both the boy and his sister and their co-operation in relaxation and in cultivating the free use of both hands was promised. Results in this boy, as in the other backward children in this series were poor. Subsequent examination showed that the spirit of co-operation could not be aroused to any extent although after half an hour of patient effort he was somewhat relaxed and only stammered a little. Experimenting with his left hand yielded no result - he persisted in writing with his right hand and kicking with his left foot. It is difficult also since the mother is dead and the father in another town to exercise effective supervision. Nevertheless it is hoped

that something will be achieved with more frequent visits to the Clinic.

CASE NO. 27.

F.D. Age 6. (M). Slight stammer. Pleasant boy but rather anaemic. His father and mother work all day and F. and his brother E. (next in this series, No. 28) are left in charge of a grandparent who is rather deaf. When F. was about three-and-a-half he attempted to do everything with his left hand and was checked. This coincided with a marked hesitation in speech which continued until after he went to school but has almost disappeared now. His teacher allowed him to use the left hand from the beginning at school. Extra milk and malt and cod liver oil improved the physical condition and the two boys practised relaxation together.

CASE NO. 28.

E.D. Age 5. (M). Very slight stammer. Brother of F.D. (Case No. 27). Shows no tendency to lefthandedness or any other unusual trait. Slightly anaemic like his brother and was granted extra milk and malt and cod liver oil. His period of speech hesitation coincided with his brother's and he is now all right. Appears to be one of the few cases where imitation is the only cause found unless the subnormal health played a part as a contributory factor.

CASE NO. 29.

B.C. Age 7. (M). A dull and backward boy whose left eye was injured at birth so that vision is R6/6 L0. He is said to be restless at times but there was no sign of it on examination. He stammered with the commencement of speech and this hesitation was prolonged till the age of 7

in association with general backwardness. With special attention to speech tuition this prolongation of speech hesitation cleared up.

CASE NO. 30.

P.D. Aged 12. (M). Slight stammer developed at the age of 6 when he began writing. He showed a marked tendency to lefthandedness. This boy was at first cnecked and it was at this time that the stammer developed. Later his teacher allowed him to use the left hand and he is now definitely lefthanded and the stammer is practically non-existent. As he is rather an excitable boy however, he is practising nightly relaxation. At the same time as the stammer developed he had frequent nightmares but this passed off. His brother now aged 18 years went through similar stages, stammering slightly and is now lefthanded.

CASE NO. 31.

J.J. Age 13. (M). Slight stammer. Average intelligence. A pleasant boy with apparently a strong sense of responsibility. He received 5/9d. a week for delivering papers and appears to be completely satisfied to receive 6d. a week pocket money from the earnings. His father died when he was 2 and his mother married again. The stepfather is good to him but has been in hospital with a "nervous breakdown" J. is the eldest of five. He keeps white mice; this seems to be his only hobby. He is much attached to a younger brother who had a serious illness, pneumonia, and it was at this time when J. was 12 that he began to stammer. This younger brother is a bedwetter. During the period of supervision at the Clinic the stammer passed off completely. No treatment other than a few short talks was found necessary.

CASE NO. 32.

G.G. Age 12. (M). Very slight stammer. Average intelligence. Elder of two. This boy sometimes had rheumatic pains in the legs and had periods of restlessness especially noticeable in bed at night. He denied being a stammerer and at the Clinic the hesitation shown in speech was hardly noticeable although the teacher reported him as having been a slight stammerer. Treatment for rheumatism and incipient chorea together with special supervision from the class teacher to allay any anxiety present was sufficient in this case. There was no neurotic family history and no trace of a neurosis in the boy.

CASE NO. 33.

J.K. Age 13. (F). Medium stammer. Was rather a dull and backward type when she first came under the supervision of the School Clinic. Home conditions very unsatisfactory and the girl restless and difficult. She was always having some complaint or other and her school attendance was irregular. The mother had several illegitimate children and was definitely unreliable in some of the statements she made at the Clinic. She was a bedwetter and had a considerable degree of secondary pyuria. Until recently she had a friend who seemed to have a very bad influence over her and she got into a lot of trouble at school along with this friend. Under treatment at the Clinic, both medical and psychological, the bedwetting cleared up and she is now physically much stronger than formerly. She has also developed a confident poise and her stammer, though not yet gone, is diminished. Fortunately the friend removed to another district and this was a great help. Later the Headmistress reported general improvement since the departure of the friend. Home conditions are apparently

more normal as her father is said to be now living at home again though it is difficult to know if the information given on this subject is correct. The mother blamed an attack of measles for the stammer.

CASE NO. 34.

J.S. Age 6. (M). Medium stammer of recent origin. Average intelligence. Family history is negative. Suffers at times from attacks of urticaria which clear up quickly. Is an excitable, easily upset child and six months ago he was pushed down the steps of the school. He fell and the face was badly cut. Shortly afterwards his mother noticed that he stammered and had night terrors. Both are clearing up under sedative treatment and relaxation practice. Stammer appears to be the result of the accident in an excitable child. There is no sign of a deep seated anxiety state.

CASE NO. 35.

G.F. Age 12. (M). Medium stammer. Average intelligence. Father unemployed and family on poor relief. Gets free milk at school. Nutrition is normal. Father attended Clinic with the boy and seems willing and anxious to help. He has a married sister who has always stammered. The boy himself attributed his stammer to copying a bad stammerer who lived at the same house. Probably imitation, not only of this boy, but of the sister, was a factor, superadded to already existing tendency. At a later interview the mother attended with him and reported that he was practising relaxation and correct breathing and that he was much improved. He was in fact, so much improved that he did not stammer at all at his final interview. Poverty almost certainly played a part in conditioning this boy.

CASE NO. 36.

I.J. Age 12. (F). Medium stammer. Had also a slight lisp. Attended special lessons some years ago and had greatly improved. The defect had existed since she began talking. The parents were full cousins. Her mother died of diabetes. She is a bright, co-operating type of personality, the elder of two. She undertook to resume the relaxation and speech practice which she had formerly done and this produced a very satisfactory result. This appeared to be a physiological stammer associated with lisp and would probably have cleared much earlier had this been realised and special speech practice given.

CASE NO. 37.

J.S. Age 6. (M). Medium stammer. Subject to bronchial catarrh. Nutrition normal and intelligence average. Subject to frequent attacks of bronchial catarrh although looks quite robust. Started to stammer at four-and-a-half years, then stopped and started again when he had measles and tonsillectomy in his sixth year. His mother states that he has periods when he does not stammer and that it is always an attack of bronchial catarrh or a bad cold or influenza which starts him off again. The mother appeared excitable and highly strung, otherwise there seems no family predisposition to neurosis.

CASE NO. 38.

W.D.D. Age 13. (M). A healthy boy of normal nutrition and average intelligence. His parents and family live in another town and he has been brought up by his grandmother because his mother is "delicate and highly strung." He

seems fond of his grandmother. There is a family history of stammering and lefthandedness. Two greatuncles stammer and one uncle is lefthanded. The boy himself is lefthanded. He states that he has never been asked to be righthanded. The combination of family tendency to stammering and separation from the normal family group is probably the cause. The grandmother is rather irritable and on the defensive and did not come to the Clinic when asked to do so. He is practising relaxation and is improving. This boy has left the town and has been lost sight of but as there was some talk of his returning to his own family, and this was advised at the Clinic, this is probably what had happened. If so, removal from his grandmother and return to the normal family group is likely to have completed the cure.

CASE NO. 39.

D.S. Age 12. (M). Slight stammer. Strong family predisposition to stammering may be due to inherited weak cerebral dominance. The father and all the father's family stammer and the boy's younger sister stammers. A paternal uncle who stammers is lefthanded and the boy prefers to use his knife at table with the left hand though he has never been allowed to write with the left hand and is always checked at home. He is a very sensitive boy - sang in a church choir but felt so conspicuous that he had to come out of the choir. He likes handwork if left alone and not watched. The mother first noticed the stammer after an operation for appendicitis in hospital followed by a severe attack of pneumonia. He was instructed to use the left hand whenever he wished and to practise relaxation. No inclination to assume lefthandedness was shown but after another year at school and periodic talks in which ease and relaxation were suggested strongly to him this boy

lost his self-consciousness and became fairly normal in behaviour and speech except for a trace of hesitation at the beginning of his interview. He joined the scouts and enjoyed this very much. His general physical appearance has improved greatly and he is now aspiring towards being an airman. The strain of severe illness, causing loss of self-confidence, superadded to a family predisposition to stammering was no doubt the cause of this boy's condition.

CASE NO. 40.

E.H. Age 11. (F). An anxious girl of average intelligence who has suffered from eczema since infancy. The mother is also excitable. The father had some money left him when E. was two years of age and began drinking heavily. When drunk he persistently ill-treated both mother and child. He is now dead. When E. started school she always kept running home, presumably in a state of anxiety about her mother's welfare. This girl has been under observation for about a year and the improvement shown is not very marked. She will not persevere with relaxation and the mother scolds her but does not help as she believes that she will always stammer when she has an attack of eczema. The best approach to this case seems to be though physical treatment, operating locally and by suggestion. Probably the eczema originated in anxiety set up by the father's early treatment. Six months later this girl returned to the Clinic for treatment for a very mild attack of eczema and was found to be improving though still a slight stammerer.

CASE NO. 41.

J.T. Age 8. (M). Average intelligence. A nervous, excitable child with neurotic family history. His father suffered from shell-shock during the war. His mother has a

cleft palate and hare lip and speaks very badly and is very excitable. She had seven operations for this defect in infancy. J. was apparently rather late in talking and has always stammered. His mother said he dislikes school but when questioned he said he only disliked reading aloud in school. Arrangements were made for oral work to be cut out. About once a fortnight he says he has nightmares and he was encouraged to remember what the nightmares were about. His talks at the Clinic combined with the relief from oral work at school and relaxation practice sufficed to relieve anxiety. There have been no further nightmares and the class teacher reports improvement in speech.

CASE NO. 42.

M.N. Age 13. (F). Slight stammer. When first seen this girl had every appearance of a neurosis. The headmistress was having great difficulty with her at school. On one occasion when given a note to take home to her mother the girl hid the note under the mattress and sat in her room guarding it all afternoon. She talks a lot in her sleep. Speech as well as being hesitating was indistinct but this was due to dental irregularities and improved after dental treatment. The eyes were myopic, vision being R6/24 L6/18 and this defect seemed to have come on rapidly as vision was normal at the "intermediate" medical examination. The mother complained that the girl had no confidence in herself. Her father was said to have suffered several times from neurasthenia. During the period of supervision at the Clinic she talked freely and appreciated what was done but was unable to give an specific cause for her anxiety. Mental disturbance associated with the onset of menstruation causing loss of self-confidence seemed to be the main factor as great improvement was shown thereafter. Her mother acknowledged great benefit from the talks and

from relaxation, and from correction of the visual defect.

CASE NO.43.

E.M. Age 9. (M). Slight stammer. Above average in intelligence although he was two-and-a-half years old, according to the mother, before he spoke clearly. Associated with this delay in speech there was apparently an excessive physiological stammer which has cleared up now. There is however, a neurotic element present and until a year ago the boy was a bedwetter. He still stammers but only when he has been very excited and especially, according to his mother, after playing at "cowboys". There is no history of lefthandedness in the boy or his mother's family, but a cousin on the father's side of the family is lefthanded. His mother's brother stammered when he was young but grew out of it. The mother is particularly good and is co-operating in keeping down hyperexcitability in the boy.

CASE NO. 44.

R.H. Age 12. (M). A bright boy above average in intelligence. Has prominent front teeth with slight associated lisp ("s" sound rather indistinct). Stammer is only slight. It has been present since the age of five but is definitely improving while under supervision. He does not appear to have any anxieties. The alleged cause of the stammer is an accident - the boy was run over by a motor cycle at the age of five and this does seem to have precipitated the stammer. Actually, however, there is a definite family tendency as his father and a younger brother have both stammered. There is nothing in the history suggestive of weak cerebral dominance. Eighteen months after this boy was first examined for

stammer he presented himself at the Clinic for an employment licence and was found to be quite free from stammer.

CASE NO. 45.

J.S. Age 12. (M). Slight stammer. Average intelligence. Physical condition is normal now though he has had a lot of illness. When he was five years old he had scarlet fever, chickenpox, diphtheria and measles, in rapid succession. He was eleven weeks in the sanatorium with the scarlet fever attack. He was just getting over these illnesses when he broke his leg and had ten weeks in hospital for that. When he came back his mother noticed bedwetting and also that he had nightmares and had become rather an excitable boy. The stammer developed after an attack of bronchitis last year. With complete physical recovery all the anxiety symptoms including the stammer have passed off. A younger sister had developed a slight temporary stammer in association with extensive septic sores on the legs. One one occasion his father came with him instead of his mother and gave the opinion that in both of his children it was entirely a matter of their state of health causing the stammering. Health certainly played a considerable part in conditioning this boy but it is certain that his illnesses caused loss of self-confidence and his hospital experiences set up a state of anxiety.

CASE NO. 46.

J.H. Age 8. (M). Average intelligence. Slight stammer which began at the age of 6 after he was knocked down by a bicycle and greatly frightened. He had nocturnal enuresis at the same time but this was treated immediately with Ephedrine and was cured. The home environment is excellent and there is no history of neurosis or weak cerebral dominance.

The boy is under special treatment for his stammer from a masseur who gives him ultra-violet-ray treatment and respiratory exercises. The linking up in his consciousness of the shock from the accident and the repression of the memory was clearly explained to him. He is singing in a choir and practising relaxation. He is improving though rather slowly. A year later this boy spoke practically normally. A faint hesitation was noticed at the beginning of the interview but this passed off. This was probably due to the focussing of attention on his speech. His mother reported herself as well pleased with him.

CASE NO. 47.

J.O'H. Age 9. (M). Had a slight stammer but this has passed off completely during the period of supervision, although it actually started to improve two years ago. Intelligence is average. He is the youngest of four. There may be a question of weak cerebral dominance. His sister, aged 22 is definitely lefthanded and does not stammer. His brother aged 18 stammered until he was 10 or 11. J. has no nightmares or other anxiety symptoms. His mother can only remember three occasions of bedwetting. The stammer was present when he started speaking and is a physiological one. He likes poetry and has no hesitation in speaking in public.

CASE NO. 48.

P.K. Age 11. (M). Has slight stammer which only started this year and seemed to be definitely precipitated by a period of ill-health - frequent hordeola, anaemia and haemic murmur. There is however, a slight suggestive family history as the father is very excitable and the mother herself has a slight tendency to stammer. His younger sister was a bedwetter but is cured. Except that

he cries easily the boy seems quite normal mentally. He likes handwork, especially bookbinding and woodwork and he talks freely. With improvement in health the condition is passing off.

CASE NO. 49.

B.P. Age 12 years. (M). Slight stammer associated with anaemia and general debility superadded to family tendency to stammer. His maternal grandfather, aunt and cousin all stammer slightly, also his mother. Under Pil. Blaud and artificial sunlight treatment, the general health and with it the stammer are improving. A high error of refraction is well corrected.

CASE NO. 50.

J.C. Age 12. (M). Medium stammer. This boy was living at Blackburn until recently and attended the stammering class there. His stammer had been attributed to a severe fall on the head at the age of 3, by his mother, and to imitating another boy by his father. He began to stammer at about 5 years. The father has been unemployed for many years and the mother left the family and came to Blackpool to work during each season. She finally took a boarding house at Blackpool and the family joined her there. The boy had night-terrors when his mother was away in Blackpool and said he was frightened by an old blind woman - a neighbour - who kept telling him frightening stories. He is very sensitive and said he did not like school but admitted afterwards that it is only oral work he dislikes, as the other boys might laugh at him. When oral work was cut out at school he was greatly relieved. He was well versed in relaxation methods from his three months at the stammering class in Blackburn and promised to practise with another boy in his class who

also stammered. His intelligence is average and there appeared to be no neurotic family history in this case and no ill-health. The combined factors in the causation of the stammer were probably instability from head injury, anxiety from separation and imitation.

CASE NO. 51.

E.S. Age 10. (F). Medium stammer. Very anaemic, rather anxious type of girl. The mother states that the stammer always gets worse when she is "run down" and loses confidence in herself. The mother is deaf and very excitable. No history of lefthandedness in the girl or her family. She was born by Caesarean section. She is an only child. A course of Blaud's pills and cod liver oil greatly improved her general condition and her stammer. She was encouraged to do some extra singing and handwork and to practise relaxation and it looks as if the anxiety state will wear off with increasing health and self-confidence.

CASE NO. 52.

J.S. Age 11. (M). A large overweight myxoedematous boy who has been under his family doctor for endocrine dysfunction since the age of seven. There is associated backwardness in school work and general lethargy but he is a pleasant, good-natured boy. At present he is taking two-and-a-quarter grains Thyroid daily and any diminution in the dose causes the weight to increase rapidly. A younger brother had a severe attack of chorea three years ago and the mother thought that watching his brother worried J. very much and she said that at this time the stammer developed. This however, seems doubtful as he is definitely not the worrying type. He is left handed but a weak cerebral dominance is suggested as he was easily

trained to use his right hand. His maternal grandfather is also lefthanded.

General physical and mental backwardness from thyroid dysfunction combined with a possible weak cerebral dominance seem to be the factors in this case. He continued his thyroid treatment and was instructed to develop his lefthandedness without conflict. Some improvement resulted but a certain amount of slowness persisted.

CASE NO. 53.

A.L. Age 12. (M). Medium stammer. Precipitated by an attack of pneumonia when aged 10 followed by chronic bronchial catarrh. There was a previous history of two attacks of pneumonia before the age of 10.

Vision is slightly defective, R.6/6 L.6/12.

There have been no adverse environmental factors except the ill-health. Mentally the boy is average and appears to have held his own in school in spite of frequent absences. He lacked confidence however when first seen but after supervision and encouragement self-confidence was improved. He joined the scouts and displayed his badge proudly and announced that he was to be allowed to go to camp. Artificial sunlight helped him physically. Lack of confidence due to ill-health seemed to be the factor in this boy and he is greatly improved.

CASE NO. 54.

O.S. Age 13. (F). This is a highly sensitive, anxious, studious girl who is preparing for a commercial examination. She has a severe stammer, worse when she gets excited or has to speak alone to strangers. She received injuries at birth to the head and face resulting in a slight left hemiparesis. This is hardly discernable now. She is not lefthanded but her mother's brother and father are. She is illegitimate

and lived with her mother and grandmother till the age of nine when her mother married and went to live in London and O. remained with the grandmother. She was very unhappy about her mother's marriage and had always leaned greatly on her mother. She began to stammer and have nightmares about this time and to present an appearance of anxiety which she has had ever since. She also developed a vague illness at this time which caused her to be absent from school for about two months and is the only time of poor attendance in her school career. She will not discuss her feelings with her grandmother but appears to be reacting to her enforced separation from her mother. She confided also in a cousin that she felt worried about not having a father but she will not discuss this with anyone else. All her school reports are most satisfactory her only bad subject being arithmetic. She is particularly good at handwork. At one stage she took such good places in class that she was offered promotion from a "B" to an "A" division. This threw her into such a state of worry that the idea had to be abandoned and she is still in a "B" division and there is taking high places in class. Her mother was anxious to prepare her for work in an office but it seems unlikely that this type of life would suit her as her stammer is at its worst when she meets strangers. The headmistress agreed to try and direct her on to more practical subjects and to extend extra sympathy and have short talks with her once a week. She is improving. At the first part of her commercial examination she failed in arithmetic and passed in English. She will probably be persuaded not to sit any further examinations. Separation anxiety, worry about her illegitimacy and possibly a sense of organic inferiority may all have played their part in this neurosis.

CASE NO. 55.

F.P. Age 10. (M). Slight stammer which developed in association with the strain of going to school at the age of 8 for the first time and finding himself among much younger children. He is the ninth of a family of nine children and it is difficult to find out exactly what prevented his attendance at school for so long. His mother said that he had a lot of ailments but that the chief reason was that he was always a frightened child, especially of going to bed and the doctor thought he would grow out of it. Having had eight other children who are all alleged to be healthy the mother was not disposed to pay much attention to this boy's troubles and she denied that he stammered at all. His teacher was quite definite however about the stammer and he has had special tuition in his lessons to help him to overtake the others. The intelligence is average. There is no lefthandedness and no history of neurosis in the family. To judge from the mother's attitude, parental indifference and over-rapid "psychological weaning" may have set up the original neurosis in the child. His stammer has now passed off.

CASE NO. 56.

G.B. Age 9. (M). Severe stammer. Average intelligence. His mother said rather defensively that his father had stammered much worse until 14 years and had completely grown out of it and that she was sure he would do so in the same way. He is rather a pale boy and twitches the eyelids a little. Vision is normal. He has chronic bronchial catarrh. Further questions revealed that he did not go to school until he was 7 because of "twitching the arm and stammering" and received treatment from the family doctor at that time. The stammer came on quite suddenly at four years but was not severe till after an accident at five years. He was knocked down by a car and had his front

teeth broken. For about two months after the accident he had severe nightmares and was continually wakening the house screaming with fear during the night. This passed off. An uncle suffered from chorea badly and there seems little doubt that there is a rheumatic element in the boy's twitchings. He was put on salicylate treatment. The mother is very excitable and it was quite an effort to get her to listen and discuss the boy's condition quietly. There seems therefore to a neurotic inheritance from both parents. The father is a joiner and lives in London and the mother and boy live with the maternal grandparents. The mother repeated more than once that she supported her parents and the impression was given that the home environment was not too good and set up an anxiety state.

The boy is extremely sensitive about his stammer and at times will not play with other boys at all and passes his time drawing and doing handwork of all kinds.

He has been encouraged to go out and mix with other boys and is making a real effort and is improving.

CASE NO. 57.

G.H. Age 11. (M). Slight stammer. Average intelligence. Rather pale, anaemic type of boy with a rheumatic heart. Did not stammer when commenced speaking. At two-and-a-half years he had pneumonia, at three-and-a-half scarlet fever, followed by a lot of rather vague ill-health culminating in rheumatic fever for which he was off school for six months last year. His mother says he "is inclined to be lefthanded" and when asked to explain said that he did not seem to mind which hand he used for anything. No desire to become definitely lefthanded was shown. He is still very subject to rheumatism at times and has to have courses of salicylate treatment.

The stammer was noticed after the first serious illness and since then has come and gone according to the state of health. The mother feels convinced that it is entirely connected with his physical state. But a weak cerebral dominance is probably a predisposing cause. There seems to be no other psychological factor.

CASE NO. 58.

K.K. Age 10. (F). Medium stammer. Above average in intelligence. A bright child and not considered nervous. Does very well at school and has no fear of oral work. When asked if she would like to be excluded from oral work she replied that she would rather continue. But for her reading she would probably have been top of the class. She sings in the school choir, dances and swims. Her only brother is also above average in intelligence. There are no sisters. Both father and mother brought her for interview at different times. The mother spoke rather badly having a defective "r" sound and a slight lisp. The father was of the worrying type, inclined to overemphasise unimportant points, returning to the Clinic to report things he had forgotten to mention. When she was five she went for an errand and was knocked down by a motor car. It was after this that the stammer developed - between the ages of 5 and 6. It seems likely that this was a contributing cause superadded to an inherited predisposition to anxiety and faulty speech which otherwise should not have been manifested in such an intelligent child. She was able even at 10 years to appreciate the possible causes and reacted well. At the last examination she got 16 out of 20 for reading.

CASE NO. 59.

W.G. Age 9. (M). Medium stammer. Average intelligence. Not a very good type physically although except for rather a high palate and two projecting upper central incisors there is nothing specifically abnormal with him. He was said to suffer from sick turns but this was found to be due entirely to the tendency to swallow his milk too quickly in school when he gets excited and wants to go out to play. He is a very excitable boy and this is noticed in school especially at arithmetic. He cries when unable to do his lessons. The mother is a very poor type and came only once to the Clinic. This boy was born two-and-a-half years before she married and she did not marry the boy's father. The home is known to be a thoroughly unsatisfactory one and the boy looked unhappy. He could not be induced to speak of his worries and as he was always accompanied by a deaf and backward sister, progress was slow. He has been encouraged however, in relaxation and although he still stammers markedly at the beginning of his interviews, he calms down very much during them. Nothing short of complete removal of this boy from his present surroundings would remove his difficulties and put him on the way to complete recovery. So far as could be discovered from him his unhappiness lay not in any conscious attitude to his stepfather but to the general mismanagement of the home.

CASE NO. 60.

T.L. Age 12. (M). A dull and backward boy with highly arched palate and prominent front teeth and slight visual defect. He is the third of a family of seven and he comes from a home where money is rather scarce. The mother dis

not come to the Clinic because she had a baby. She sent the boy alone. The Head Teacher at his school undertook to help the boy to practise relaxation. He reported that he found him very temperamental. The boy stated that he was righthanded but that he always kicks at football with his left foot. When the home was visited however, it was found that there was a definite history of lefthandedness on the father's side, the father himself being lefthanded and several members of his family having a tendency in that direction. The boy is one of seven children and the mother stated that they all tended to use the left hand and had to be checked and that now they are righthanded but not strongly so. During the pregnancy the mother had an accident accompanied by shock and when the boy was three he got a severe shock when he was put under a pump of cold water. These may have been precipitating causes superadded to weak cerebral dominance and general backwardness. Very little progress is being made in this case and the outlook is felt to be poor in view of his backwardness and the lack of parental co-operation.

CASE NO. 61.

P.M. Age 11. (F). Medium stammer. Average intelligence. Excitable girl who generally shows a tachycardia at medical examinations. She is the youngest of two. When she was six her mother was seriously ill with rheumatic fever for many months and during the time the stammer commenced apparently as a symptom of mother-separation-anxiety. There seems to be no other factor involved and three months after the first interview there was no stammer perceptible and the mother sent word that she did not require any further examinations as in her opinion there was no need now for treatment.

CASE NO. 62.

J.S. Age 13. (M). Medium stammer. A boy of poor physical type, flat chested and anaemic. Following rheumatic fever he developed a diastolic murmur which is still present. Nutrition is slightly subnormal and he comes from a very poor home. There is friction between the parents. The mother is reported to be lazy, preferring to lie in bed in the mornings rather than look after the children. She had to be visited at her home for particulars about the boy. Both parents are said to be rather subnormal mentally and the boy is classed as dull and backward at school. He stated himself that his only difficulty in speaking is that he cannot speak long sentences as he wonders what he is going to say next. There is everything in the history however to suggest anxiety as a contributing factor superadded to hesitation from his subnormal mentality.

APPENDIX D.

NOTES ON RELAXATION.

Relaxation is a useful adjunct in the treatment of stammer and was employed in most of these children. Each child was made to lie down at the clinic in a quiet room and was put through the process of relaxation as completely as possible, starting with head, neck, shoulders, arms, hands, passing on to slackness of chest, abdomen and legs. When a high degree of relaxation was achieved the child was then allowed to speak very softly in a monotonous tone so that he might practise speech in a relaxed state. For this purpose the sentence used was the one recommended by Boome & Richardson (1931, p. 29) namely:- "When my feeling of ease is deep enough, my words flow over my lips."

At subsequent visits to the clinic relaxation was repeated to see that it was being done properly. The regular practice of relaxation is the chief virtue of a stammering class. The child took home a sheet of printed instructions, as follows:-

Relaxation.

To help you to speak more easily you should practise relaxing regularly every day in the way you have been shown at the clinic.

Lie down quietly on your bed in a darkened room for twenty minutes or more when you get home from school. Breathe quietly and relax every part of your body. Try to feel that you are sinking through the bed. Then say softly, over and over again, these words:-

WHEN MY FEELING OF EASE IS DEEP ENOUGH, MY WORDS FLOW
OVER MY LIPS.

You speak badly sometimes because you have lost that feeling of ease. You must remember that if you can manage to bring it back your words will flow over your lips and you will speak well.

It is a good idea to copy the sentence which you repeat on to a post-card and pin it on your bedroom wall, to remind you to keep calm.

APPENDIX E.

SUMMARY OF SPEECH DEFECTS
OTHER THAN
STAMMERING
IN THE
BLACKPOOL SURVEY.

An analysis of the 98 children showing indistinct speech showed that there were 21 with general difficult and baby talk and 77 who showed difficulty in pronouncing one or more consonants. There were also 13 children with nasal speech.

Baby Talk. Of the 21 with baby talk, 11 children were actually the babies of the family and 5 others were the eldest of the family and would therefore probably have experienced considerable attention and possibly fussing in infancy.

Only 5 children occupied intermediate places in the family group. 6 of the 21 were definitely dull and backward and 2 were above average in intelligence, 13 being of average intelligence.

Noteworthy points which probably had some bearing on the defects in this group were as follows:-

History of operation for tongue-tie	1
Enlarged tonsils and adenoids	1
Irregular dentition	1
Subnormal nutrition and history of pneumonia and frequent absences	1
Associated deafness	1
Probably imitating an older brother who had cleft palate	1
From a very poor home	1

With regard to the children found to have defects in particular letters, the following table shows the distribution of difficulty in the various consonants.

Difficulty with s	27
" " th	20
" " r	12
" " th and r	6

Difficulty with s and th	2
" " s, th and g	1
" " f and v	1
" " k, th and s	1
" " s and r	1
" " s and k	1
" " k	1
" " j	1
" " th, s and r	1
" " o and g	1
" " l	1
" " tu	1

▲ table showing associated defects found now follows:-

<u>Letter Mis- pronounced.</u>	<u>Total.</u>	<u>Intelligence.</u>		<u>Associated Physical Defect.</u>	<u>Psychological Considerations.</u>	
		<u>Aver:</u>	<u>Dull & Above Backwd. Aver:</u>			
s	27	16	5	6	Slight tongue tie 3 Microcephaly 1 High Palate 1 Cardiac debility 2 Defective vision 2 Enlarged tonsils 1 Irregular teeth 5	Possible imitation of brother 1
th	20	16	4	-	Defective vision 4 Irregular teeth 5 Bronchial catarrh 1 Nasal catarrh 1 Sub-normal nutrition 1 Enlarged tonsils 1 High palate 1	Nervous debility 1 Possible imitation, mother. 1
r	12	10	2	-	High palate 4 High palate and repaired cleft 1 Defective vision 1 Cardiac atony 1	
th & r	6	4	1	1	Irregular teeth 1 Severe scarring of face 1	Neurotic family and family tendency to bad speech 1

<u>Letter Mis- pronounced.</u>	<u>Total.</u>	<u>Intelligence.</u>			<u>Associated Physical Defect.</u>	<u>Psychological Considerations.</u>
		<u>Aver:</u>	<u>Dull & Backwd.</u>	<u>Above Aver:</u>		
th & s	2	1	1	-	Defective vision and Nasal catarrh	1 Mother deaf 1
th, s & g	1	-	1	-	General delayed development, ill-health and irregular teeth	1
v & f	1	1	-	-	Had tonsil operation	
k, th & s	1	-	1	-		
s & r	1	-	-	1		
s & k	1	1	-	-	Anaemia and slightly sub- normal nutrition	
k	1	1	-	-		
j	1	1	-	-		
s, th & r	1	1	-	-	Anaemia, debility and high palate	
c & g	1	1	-	-	Slight tongue tie and delayed speech tendency	
l	1	1	-	-		
tu	1	1	-	-		

Of the 13 children showing nasal speech 4 were dull and backward and the rest were of average intelligence.

The following physical causes were found:-

Recent removal of tonsils and adenoids	4
Chronic tonsillitis with adenoids	3
Bronchial catarrh	1
Nasal catarrh	2
Incompletely repaired cleft palate	3

Either the head teacher or the class teacher was present at all these examinations and a very high opinion was formed of the excellent remedial speech work which is being carried out quietly and unostentatiously by the teachers. This is work which requires a great deal of patience and extra time and it is often carried out after the classes have dispersed. One of the reasons for this survey was to find out if a remedial speech centre was required in the Borough and it was felt quite definitely that these children whose defect consisted in general difficulty or difficulty with certain letters could be and were being adequately dealt with in their own schools.

Much time and travel and organisation was being avoided when speech correction was undertaken in the child's own school. The work requires definite conscious support and regular supervision from the school medical service, not only to encourage both teacher and child but also to make certain that all possible physical defects and psychological factors are being eliminated. Also special exercises to produce tongue and lip mobility and to correct breathing have to be recommended and demonstrated in many cases.

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