Fear as An Inhibitory Factor in a Motor Function

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FEAR AS AN INHIBITORY FACTOR IN A MOTOR FUNCTION

By

Dorothy Elizabeth Bresnahan

A THESIS SUBMITTED IN PARTIAL FULFILLMENT
FOR THE DEGREE OF MASTER OF ARTS
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PREFACE

This thesis represents a study of the instinct and emotion of fear and its relation to swimming. I have attempted to analyze fear, using for my guidance the theories and experiments of eminent psychologists, that through such scientific enlightenment I might come to a better understanding of the reasons why fear acts as an inhibitory factor in swimming.

I have endeavored to apply principles for the correction of fear and to establish methods which may be of use to the teacher of swimming in overcoming it in her classes.

I am deeply indebted to Miss Nellie Bussell, head of the Physical Education Department of Chicago Normal College, for her helpful suggestions and encouragement in my experimental work in the swimming classes, to the Psychology Department of Chicago Normal College for their interest and cooperation, and to Reverend Austin G. Schmidt, S.J., of Loyola University for their guidance and inspiration.

Dorothy E. Bresnahan

May, 1928.
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FEAR AS AN INHIBITORY FACTOR IN A MOTOR FUNCTION

CHAPTER I

Introduction

In any school or college where swimming is a required activity, there will be found in every class of beginners some who fear the water. The nature of the individual fears may vary, the degree of intensity of the fears may differ, but each one of these novices has at the start a definite mental set regarding the water which must be overcome before any progress in swimming is possible.

It is the problem of the swimming teacher, therefore, to understand something of the nature of this emotion. Just as a good physician must examine a patient to find the cause of the symptoms displayed, in order to cure disease, so must the swimming teacher seek first the cause of the novices' fears so that the treatment given be beneficial in each individual instance. This type of procedure may at first seem to take an undue amount of time and energy, but if such treatment is started immediately, those individuals who have had fears are soon made a part of the normal class and thus may progress with the class, adjusted and happy.

Too often, when this measure is neglected, those possessing some type of fear of the water will dread the approaching
swimming lesson, will feel miserable, unhappy, and misfit in class, perhaps brooding over the situation because of their slow progress. If this extreme is not reached, the majority of these fearful novices may retain their secret fear and dislike, although making a good effort in class, but the result is that their attitude toward the water does not change; they continue to dislike and fear it; and may influence others to dislike and fear it also.

The Nature of Fear

What is fear? We see its results and possibly have experienced it in some degree, but precisely what it is, many of us do not know unless we endeavor to investigate the matter.

Perhaps there is no rational being who has not experienced fear at some time in his life and reacted to it in some definite or indefinite manner which still leaves its indelible mark in the memory. If there has lived a man who by some strange coincidence has lived an entirely fearless existence, he has, nevertheless, not escaped witnessing the results of fear in his fellow-man or in other creatures, birds and beasts. Naturally, the sheltered life of this era protects us against the extreme degrees of fear which primitive life excited, and now such extremes are found only in rare instances in man, or in pathological and abnormal conditions.
anxiety, apprehension, timidity, and worry are forms of fear which still exist, and therefore, these conditions or states are worthy of some study and analysis, that we may more intelligently combat them.

From experience we know the effects of fear. Let us consider one form--worry, for example. Worry causes loss of sleep, loss of appetite, inability to turn the attention to pleasant things, and inefficiency in physical or mental work, because the mind is filled with that which is dominating the thoughts and causing this depressed state. The facial muscles are affected and the expression is sad and drawn, or perhaps tense. The face is usually pale, and the eyes lack luster and sometimes deep circles underneath are the results of mental stress which we call worry. The person who is worrying will not feel physically well and may experience nausea or headache or other similar symptoms. In other words, this simple form of fear causes mental and physical conditions which are both distressing and injurious to the individual as well as to his environment, and such a person is not normal physically or mentally.

Let us see what great educators and psychologists have said in regard to fear and how they have classified it.

Angell says that anger and fear are instincts and also emotions. Each of these is accompanied by an involuntary change in organic activities which is spontaneous and of an
hereditary type. Accompanying these organic activities there are also conscious processes which make up what is known as the emotion (2:346-47).

These hereditary modes of response, which we know as instinct and emotion, together with the acquired modes of response which we call habits, go together to make up human action. These hereditary and acquired forms of activity are merged very early in life. It is possible to have an emotional reaction without the stimuli which originally produced it, and instinctive reactions soon become complex conditioned responses and organized habits. It is difficult and almost impossible to discover a purely instinctive act which has not been affected by past experience, and perhaps we have none excepting as infants when first we are confronted with an entirely new stimulus, and the simple reflexes such as the closing of the eyelids. Most of our actions are complex and conditioned by past experience. Modern psychology admits but few purely instinctive acts in human behavior. Watson (62:194) and James (31:373) admit that psychologists find difficulty in drawing the fine line which distinguishes between hereditary and acquired reactions.

In comparing emotions with instinct, James says that an emotion is a tendency to feel and an instinct is a tendency to act characteristically when confronted by some object in the environment. Whatever excites an instinct also excites an emotion, the emotional reaction terminating in the
subject's body, while the instinctive response may enter into immediate action toward the exciting object (31:373).

Watson lists fear, rage, and love as belonging to the basic and original nature of man, as these are early types of emotional reaction. An emotion Watson defines as "an hereditary pattern reaction involving profound changes of the bodily mechanism as a whole, but particularly of the visceral and glandular systems" (62:195-99).

Fear is included by James in his classification of the "coarser emotions," which also include anger, love, hate, joy, grief, shame, pride, and their varieties. Because these emotions are coupled with "relatively strong bodily reverberation," James distinguishes them from the "subtler emotions," the aesthetic, intellectual, and moral feelings.

After the first appearance of fear, the reaction is modified by the intellect and through the power of comparison and self-control the instinct becomes graded (38:11-14).

"It is obvious that every instinctive act in an animal with memory, must cease to be 'blind' after being once repeated, and must be accompanied with foresight of its 'end' just so far as that end may have fallen under the animal's cognizance" (31: James, 395).

A child, when seeing for the first time a bright sharp knife, reaches for it grasps it and is cut. The next time the child sees the shining object, the memory of the hurt received by grasping it will set up inhibitions, and the result
probably will be that he will refrain from attaining the object he desires because of its appealing brightness, and later on he will learn to handle a knife so that it will not cut him, but serve his needs, until with practice he acquires skill and the act becomes so habitual as to become almost automatic. Thus simple acts become complex and envolved until habit makes them routine.

Man is an intelligent being, and the higher centers exert control over the lower centers in such a way that the intellect and the will, experiences, memories, and associations combine to influence most of his actions.
Chapter II
Effects of Fear on the Organism

At the basis of all animal life lies the impulse of self-preservation. Sidis says that the basis and central aim of all life activities is to be found in this protective impulse (51:passim).

In danger our impulse is to fly from that which threatens us or to turn upon it and conquer it. Organic changes in fear, anger, and similar emotions usually adjust the organism to meet the situation with increased muscular strength and endurance.

"The organic responses, then, are preparatory reactions-elaborate mobilizations for violent and prolonged physical action. The emotions of fear and anger as conscious states, are in the main, the sensations occasioned by these inner changes" (23:Gates, 191).

Fear produces a tremendous influence over the mental and physical states, and the entire organism responds to the emotion. While it may at times be the means of a positive reaction of flight or combat, in extreme instances it results in a sort of paralysis in which flight is seemingly impossible. Thus we see the effect produced on a bird as a snake glides toward it; paralyzed with fear it is unable to spread its wings to fly to safety. There are changes brought about in
the organism by fear which give rise to the resulting action or inactivity.

In an experiment performed upon a cat it was found that changes occurred in the digestive and assimilative functions when fear or anger stimulated the sympathetic system. The cat was fed a meal of gruel and bismuth, the latter of which is opaque to rays, and then was placed before a fluoroscope screen so that the churning movements of the stomach could be observed. When the cat was angered by a dog the churning movements became slower or ceased altogether. A small stick attached to the cat's leg produced a slowing down of the stomach activity. It was also proven that the gladular secretions which accompany digestion are similarly affected by anger and found that instead of the normal 65 or 70 cubic centimeters of gastric juice, an amount less than 9 cubic centimeters of an inferior quality was secreted. These two experiments show the radical changes occurring in the digestive process when interfered with by fear and anger, these two being similar in organic changes produced (23: Gates, 189).

The blood which is in the abdominal viscera is sent to the central nervous system and to the muscles; adrenalin is present in the blood stream; sugar appears in the blood, and the fatigue in the muscles is lessened and becomes slower during fear. All of these changes prepare the animal for the great need, so that he has added strength and endurance to escape or to fight (26: 82).
When the purpose for which these changes is intended is accomplished and the animal has taken advantage of his natural re-enforcements, the end is accomplished. Fear and its accompanying organic changes thus serve as a utility. But there are other instances where fear, not accompanied by the muscular effort for which it is a preparation, and inhibited by education and environment, begins and ends in the organism. This makes fear of an extreme type useless and purposeless.

Civilization today makes most fears not only impractical but injurious to the one experiencing the fear. The turmoil of emotion begins and ends within the subject in most instances. Consequently, such strong emotions unaccompanied by the physical exertion for which they are a preparation, inhibited from the activity which is their natural outlet, must have a detrimental effect on the organism. The utility of such forces for combating primitive dangers such as our remote ancestors knew, is evident; but modern life seldom presents drastic necessities that call for such a remarkable rallying of bodily forces as that which fear and like emotions call forth.

Anger, anxiety, and fear when not accompanied or followed by physical action for which these emotions are the stimuli, result in a harmful effect on the organism. Disturbance of the assimilative and digestive functions and loss of appetite and weight occur when the emotional stress is prolonged, as in
a chronic state of worry; the sugar which has been released in the blood to serve as muscle fuel is excreted in part by the kidneys and wasted; the heart and arteries and other organs exerting greater effort under these emotions may in time be impaired or injured by them; the nervous system is interfered with, which in turn effects all the body functions (23:204).

Excitement, worry, fear, anxiety, anger and like emotions are considered by the medical profession of today to be important in undermining the health of individuals. It is well known that persons under mental conflicts may exhibit such physical symptoms as speech defects, nervous tics, tremors, aphasia, amnesia, aphemia, and the like. In children these emotions are apt to be the cause of enuresis and other nervous symptoms and disturbances. In our complex environment it is not unusual for adults under severe emotional conflict to find relief from it in amnesia (loss of memory), so that they may not be able to tell their name, to remember who they are, from whence they came, or anything concerning themselves, their families or their past life.

Heart cases are warned by their physicians to beware of emotional excitement; emotional indulgence is not allowed the sick patient and anything which would cause excitement is not permitted.

In this day when mental and physical hygiene is making such great strides toward promoting health and preserving it,
is it not apropos that we say in regard to emotions that the ounce of prevention may be found well worth the effort?

The mind of the individual filled with fear or anxiety is necessarily limited in efficiency. The fearful or anxious thought dominates, fixing the attention and excluding other ideas, particularly if the individual allows himself to dwell on the danger or risk, whatever it may be. Worry is also a form of fear, and common experience teaches us the uselessness of it; the mind is temporarily impaired in its normal reasoning, until our entire viewpoint is changed (26:93).

In fear as in anger and excitement and like emotions, while there is increased body strength, skill, reasoning, and judgment are decreased or perhaps lacking altogether. While anger may cause a batter to bat the ball with increased power, it may also be the cause of his missing or fouling the ball, as his attention is diverted from the task at hand to the cause of his emotion. This is one reason why in sports it is considered poor sportsmanship to divert the players attention or to anger or excite him during the game. In golf, when the player is to drive, he is given the courtesy of silence. Emotion is sometimes fatal to skill. The child who fears standing before an audience, in his embarrassment will sometimes forget his piece which has been well memorized. An antagonistic audience has many times been the cause of failure of adult artists. Judgment is impaired by emotion, and the process of thought is interfered with by the thoughts which arise con-
cerning that which produced the emotion. When one is worried over his inability to perform a certain task which appears impossible to him and, the task accomplished, looks back, he sees how grotesquely large and impossible it appeared to be in his depressed state of mind, while in reality it was not nearly as stupendous as his impaired judgment had made it appear. When a person is afraid in the water and the fear is paramount to the thought of acquiring the skill of floating, instead of relaxing in a correct position he will stretch his arms out of water and thrust his head forward, and in this way sink his body. The same is true of a drowning person; he too loses his mental control and will sometimes sink the one who would rescue him. In panics caused by fire, mobs will do inhuman things, such as trampling fellow beings; in accidents many completely lose their reason for the time. In great sorrow or worry men become so irrational as to take their own lives, and in anger to take the lives of others. Thus we see that emotion, while increasing physical strength, will upset or derange the mental processes.

The teacher of swimming witnesses the play of the emotion of fear in many of her novice pupils. The types of fear vary, but the reaction to the water is similar in most cases. If the pupil is crudely forced, without reason, her fear will cause her to escape from the swimming lesson. The primitive instinct of flight is modified by the intellect and the will,
and she will resort to more modern and effective means of rid-
ing herself of the threatened danger (as she perceives it to be) by feigning illness or physical inability and possibly by presenting a medical excuse which has been obtained from a sympathetic family physician.

The emotion of fear is so tremendous and even in its mildest form so painful to the individual that the teacher will perform a great service if she will endeavor to understand the great problem of the fearful novice and give to her the symp-
pathetic understanding and treatment that such cases warrant. Any fear of the water should be only a temporary condition, which careful handling should lessen and in time fully correct.

As most swimming instructors are primarily interested in the health and well-being of those in their charge, the knowl-
edge of the effects of fear on the organism is an incentive to them to help rid their pupils of any water phobias they may possess.
Reactions of Fear in the Preschool Child

One of the earliest instincts shown by the human child is the instinct of fear. Defining the term in the words of James, instinct is

"the faculty of acting in such a way as to produce certain ends, without foresight of the ends and without previous education in the performance. Instincts are the functional correlates of structure. With the presence of a certain organ goes, one may say, almost always a native aptitude for its use. The actions we call instinctive all conform to a general reflex type; they are called forth by determinate sensory stimuli in contrast with the animal's body, or at a distance in his environment" (31:391).

Fear, according to Watson, occurs in infants as a response to:

1. Sudden removal of support, as when the infant is released from supporting hands and is let fall a few inches before being caught again.
2. A sudden push, shake or movement of covering when the infant is bordering between sleep and wakefulness.
3. Loud sounds.

The responses made to the stimuli consisted in a sudden catching of breath, clutching of hands in a random fashion, a
closing of the eyelids, puckering of the lips and crying. (62:199-200).

Gesell found that fear reactions trace back to at least the fourth month of infancy. He watched the reactions of fifty babies and noted the effects produced on them by loud noises. When an enamel saucer was sharply rapped with a spoon every one of the fifty babies blinked. This response Gesell does not classify as fear, but believes it is related to wincing, jumping, startling, and crying, which he says four-months-old babies exhibit when hearing loud noises or sudden noises, like a telephone bell ringing, a door slamming, or the rumble of a machine (24:229).

"Strange men, and strange animals, either large or small excite fear, but especially men or animals advancing toward us in a threatening way. This is entirely instinctive and antecedent to experience. Some children will cry with terror at their very first sight of a cat or dog, and it will often be impossible for weeks to make them touch it. Others will wish to fondle it almost immediately. Certain kinds of 'vermin', especially spiders, and snakes seem to excite a fear unusually hard to overcome. It is impossible to say how much of this difference is instinctive and how much the result of stories heard about these creatures. That the fear of 'vermin' ripens gradually seemed to me to be proved in a child of my own to whom I gave a live frog once, at the age
of six to eight months, and again when he was a year and a half old. The first time, he seized it promptly, and holding it in spite of its struggling, at last got its head into his mouth. He then let it crawl up his breast, and get upon his face, without showing alarm. But the second time, although he had seen no frog and heard no story about a frog between whiles, it was almost impossible to induce him to touch it." Black things, and especially dark places, ...... high places, .... and supernatural happenings arouse fears (31:409-10).

Gesell says: "Fears are evidently conditioned as well as inborn." He cites the reaction of a four-months-old baby who cried with regularity when a clock above her bed would strike the hour. Before the infant was five months old she was unafraid of clocks, and the fear had been overcome as she became accustomed to them (24:229).

The most common fears which Gesell found in preschool children were: fear of loud or portentious noises, fear of strange, ominous persons; fear of animals such as the dog, cat, horse and rooster; fear of the dark; fear of fire.

The most common fear exhibited in a group of fifty unselected children, of four years, was a fear of dogs. Of that number 42 per cent exhibited a moderate fear and reacted by clutching their mother's hand or skirt, or by expressing their unwillingness to pass the animal. Of the remainder all but three screamed or ran in terror. Three children had at one time or another, been afraid of dogs, but had overcome their
Gesell concludes that "the preschool period is of all periods, the most prolific for fears." He says: "Many of these fears are passing and inconsequential; but in their totality they are a faithful indication of the personality status of the child" (24:229-30).
CHAPTER IV

The Utility of Fear.

Fear is an emotional experience common to the human race throughout all ages.

Primitive man was perhaps the most subjected to the most extreme fears because jungle life held terrors which were continually threatening his life or his possessions and hampering his progress. His inability to cope with these opposing forces of nature through lack of knowledge and science, the almost single-handed fight against primitive forces which were so mighty in strength and powerful in destruction, made his existence one of continuous warfare. The emotion of fear which he experienced caused him to apprehend evil in his surroundings, danger to himself, his family or his possessions, and made him wary and alert, instinctively sensing strange things which threatened, and either fleeing from the danger, or fighting it with an enforced strength.

Fear is undoubtedly advantageous, protective, and at times of great good. It causes us to escape from that which would be of harm to us, or to turn upon the threatening danger equipped in bodily strength to overpower it. Civilization, while offering protection from the frightful dangers of primitive life, holds lesser dangers, which are nevertheless very real, vital, and far from trifling matters. Nature thus
equips us to meet such situations.

The tendency of today seems to be increasingly to dis-\count the value of fear as an asset to the individual in our present civilization. James says that it is now possible for man to go through life without once experiencing the full meaning of fear, and that the extreme of fear is to be found only in the insane (31:408). It is true that most of us never know the extreme of fear, the greatest strength of the emotion; but potential dangers, real or imaginary, give rise to dread, fear, timidity, anxiety, or uneasiness, if the extreme terror is not our lot.

Burnham believes that fear has a useful function, but he says that it is difficult to say just how far it is normal and when it becomes injurious or pathological (12:424).

Gesell says: "Fear and fortitude are opposites, but both are necessary for the growth of character." He believes that the lack of fear in a child's life would be a great loss of a means of much good. He says that normal anticipatory experiences of pain and evil act as a sort of vaccine which immunizes the child against pain and evil. He believes that fear and fortitude, developed hand in hand, produce a resistant and sympathetic individual; and that the experiences with fear and the overcoming of fear develop fortitude. "Wholesome fear," he says, "generates its own mental antibodies" (24:230).
The Spartans realized the value of such conflict, and it as a means of developing characters, the fortitude of which astonishes the world, even as an historic event. The early Christian martyrs knew fear in its extreme, yet sublimated and controlled it, facing the most gruesome of tortures without a murmur, examples of marvelous physical and mental endurance in torments submitted to for the highest cause. In the past great war, as in all wars, men have known the terrors and dread of the pain and death of battle, yet have fought bravely and well, in the face of this knowledge.

Fear undoubtedly has its use in the formation of character. The use of fear for this purpose is apparent. Like any emotion, when controlled and converted into beneficial channels it is a natural means of great good. The intellect must, however, always have fear under control, because emotion ruling over the intellect in most instances causes more harm in modern civilization than good.
CHAPTER V
Acquired Fears

"The original stimuli that cause fear may be summed up briefly under one general statement as follows: any sudden or violent change of stimuli produces fear, and thereafter anything that may become associated with the primary cause of fear, may likewise produce the same emotion (12:Burnham, 418).

Thus we may see that a child who has previously exhibited no fear in the presence of a dog, may acquire a fear of dogs if he should be startled or frightened by a large or small animal's loud bark; and thereafter the sight of the dog would recall the previous experience of fright at the loud noise, and occasion the child to fear the dog which had caused this reaction, and possibly to fear all dogs.

"Oh, I am so scared of Paul's red dog! He barks and barks and makes me so afraid That I can't go to Paul's sand-pile to play, But stand and look at him outside the fence!"

I want to go so much and play with Paul, Build castles like Chicago in the sand, But I'm afraid that Paul's red dog will bite, And have to stand and watch outside the fence!"

This verse, so well entitled "Half-Remembered Things," serves to illustrate the fears of childhood. The loud bark is terrifying; possibly the child has seen an animal bark and then bite, or it may be the child's mother has warned the little-
one that dogs do bite children. The child of the verse is in a sad predicament; he fears the dog, yet longs to play in the sand-pile. Perhaps his fears are well grounded, and the barking dog might be also a dog which would bite. On the other hand, possibly the dog is friendly and barks playfully as dogs sometimes do. The caution which the child shows may be quite reasonable, but whether or not such caution is warranted in the case the child must learn either through experience or through his elders.

The trouble with most of us lies in the fact that too many of our fears are groundless, and could and should well be avoided or reasoned against. With children, the instilling of useless fears should absolutely be avoided, and the fears which have been acquired through their inexperienced reasoning or their vivid imagination should be discovered and corrected by their parents and teachers.

Florence Bigelow Guest says of the education of children that in the average training of young children, appeal is made not to their love and trustfulness, but to their fear. Whatever they do they are taught to do through fear of something else, not from any higher motive or from following a big ideal. She says that this is particularly true in the case of the rich child who is dominated through fear by a nurse who is subjected in a like manner. The result to the child is in the lack of the development of self-reliance.
The fear of the elements and the fear of ridicule are among the commonest fears and produce cowering, timid men and women. The negative force, fear, can be overcome by the positive forces of truth and love. Guest says: "The man is what he loves, never what he fears" (27:24-27).

Training children through fear is fast being abandoned in the light of better and wider education. It is not usual in families of moderate education to use domination by instilling fear into the children. The day of the tyrannical parents is over, and it is a great blessing to the world. A perfect example of the result of such severe and unsympathetic treatment was given by Samuel Butler in his splendid book, "The Way of All Flesh." The machine age, the resulting labor laws, the enforced laws of compulsory education are all doing a great service to children. If some of the methods of the dark regime of "might is right" yet exist, it is the result of social inheritance, the carrying on of oppression by those who have been oppressed.

Some well-meaning parents who are over-anxious for their children's welfare, also do more harm than good. It is not usual today to hear: "The boogey-man will get you if you're not good," but other bug-a-boos have been substituted. Cameron says: "Grown up people, filled with anxiety because of the helplessness of the young child, unable to divest their minds of the fears of the hundred and one accidents that may befall,
or that within their own experience have befallen a little child at one time or another, unconsciously make unwise suggestions which fill his mind with apprehension and terror. Cameron says that adults' apprehension is communicated and transmitted to the child (14:28-29).

Sidis, in his "Nervous Ills," gives us some "Fear Confessions" of his patients. It is interesting to note that most of these people trace their history of fear back to their childhood experiences, and that their fears gradually developed and multiplied from then on. One says:

"I lived from infancy in a state of apprehension and fear. In my home there seemed to be always a tension. I don't know that I ever relaxed there during my waking hours. I was never at peace mentally. This was largely brought about by my mother's chronic condition of fear. I should not have had such a large development of the fear habit had there been any neutralizing influence. But my father was a weak character, living under fear, being afraid of responsibility, so that my character was closely molded on his. He gave me no moral fiber to resist the fears of my mother, and so did not help me to build any character of my own. I still carry with me the state of apprehension and fear that I contracted in my early life" (51:186).

An unhappy home condition, quarrels, and more serious troubles also make a deep and lasting impression on the child,
making of him a fearful and apprehensive adult who sees harm approaching and evil to himself in his surroundings. It is impossible to judge the extent of the harm that may be done to an impressionable child through unhappy home conditions. The least that may be said is that such a child is not prepared to meet life in the proper way and to see it with a normal point of view.

A child is also much impressed by superstitious practices and superstitious tales. Not all of the practices are injurious or lasting in their effects and, although foolish and unnecessary, such as wishing on the evening star, stepping on every line or over every line in the sidewalk, and the like seem to make a great appeal to the childish imagination. However, such practices carried to extremes may produce phobias which will harm the child in later life.

The imagination of the child may be greatly aroused and acted upon by ghost-stories and tales of crime, disaster, and horror. These are very real and vivid to the child, and usually remain in the memory for a lifetime. Several of our pupils of Chicago Normal College who have had fear of the water have partly attributed that fear to tales heard of the sinking of the "Eastland," and although very young they were vividly impressed by the deaths from drowning, that impression lasting and affecting them in college age.

The activity of a vivid imagination, tales of a supernatural trend, and the concealing of fears in childhood, are
the causes given by one of the patients of Sidis for his adult
tensive ills. This patient who is an eminent physician thus
recounts his history:

"As a child, as far as memory carries, I had a fear of
ghosts, of giants, of monsters, and of all kinds of mysterious
and diabolical agencies and witchcraft of which I had heard a
number of tales and stories in my early childhood. I was
afraid of thieves, of robbers, and of all forms of evil agen-
cies. The fears were stronger at daytime, but more so at
night. Strange noises, unexpected voices and sounds made a
cold shiver run down my back.

"I was afraid to remain alone in a closed room, or in the
dark, or in a strange place. It seemed to me as if I was left
and abandoned by everybody, and that something awful was going
to happen to me. When I happened to be left alone under such
conditions I was often in a state of helplessness, paralyzing
terror. Such states of fear sweep over me occasionally even
at present. I find however, that they are far more complica-
ted with associations of a more developed personal life. I
know that in some form or other the fears are present, but are
inhibited by counteracting impulses and associations. I still
feel a cold shiver running down my back, when I happen to go
into a dark cellar in the dead of night, or happen to remain
alone in a dark, empty house. Such fears date back to my
fourth year, and possibly to an earlier time of my childhood" (51:195-196).
The child of nervous parents is apt to inherit their nervous tendencies, and these together with the environmental influence seething with apprehension develop a nervous, delicate child.

"Differences in type, determined by hereditary factors, no doubt exist and are often strongly marked. Yet it is not untrue to say that variation in children, dependent upon heredity show chiefly in the relative susceptibility of the child to the influences of environment and management. It is no easy task to distinguish between the nervous child and the child who inherits an unusually sensitive nervous system and the child who is nervous only because he breathes constantly an atmosphere charged with douby and anxiety" (14: Cameron, The Nervous Child, 31).

Self-preservation in an exaggerated form is recognized by many eminent psychologists as a prolific source of fears. As this is an egotistic reaction, it may be logical to conclude that the pampered, spoiled child whose wish and will is the dominating influence of his parents' existence, becomes the neurotic and fearful individual in childhood or later life.

A child who is abused, mistreated, or anxious because of poverty or sickness may likewise develop accompanying fears which carry over into adult life.

Fears would be attributed by Freud to the ultimate basis of sex, which he believes to be the chief element in life, and its motivating power. He believes that the repressing of this
instinct gives rise to all conflicts. I shall not attempt to define his term "sexual," as it is a much debated question as to his own interpretation, and one on which his disciples do not agree.) Undoubtedly sex has a great motivating force in life, but it is to be doubted that sex alone is the chief element in life; certainly such dominance has not, up to the present time, been scientifically established. Sidis has a different view in regard to the "principle of inhibition:"

"Self-preservation and the fear instinct inhibit associated mental systems, producing morbid states. Morbid mental states, however, are not produced by inhibitions, or repressions. It is only when the inhibitive factors are self and fear that a true morbid mental state, or neurosis arises. To regard self repression as a bad condition and leading to diseases is to misapprehend the nature of man, to falsify psychology, and to misrepresent the development of humanity. The self should not become hypertrophied. Self-preservation should not become overgrown. The self must be kept within limits. The self impulse should be kept under control by the individual. For true happiness is a law unto oneself. As the Greek thinkers put it: Happiness is in self rule. The unruly are miserable. In fact, self control is absolutely requisite to mental health, to sanity. Self-repression is requisite for happiness. Self-repression never leads to disease.

I. S. Freud, Selected Papers on Hysteria and other Psycho-neurosis, Nervous and Mental Disease Monograph Series, No. 4, New York, 1912.
It is only when self-repression is produced and dominated by selfishness and fear that morbid states of a psychopathic, neurotic character are sure to arise. It is not inhibitions that produce fear, but it is fear that produces inhibitions. To ascribe neurosis to self-repression and to conflict is like attributing malaria or tuberculosis to air and light" (51:144-45).

Adler's theory explains conduct of a neurotic nature in the terms of the "ego instinct," and the "will to power." He believes that twists of character are the results of overdeveloped self-assertiveness. This is caused by a feeling of inferiority, which has its source in "organ inferiority." This theory has a sound basis and accounts no doubt for many of the accomplishments, and also for many of the failings, of mankind. It is not unusual to see a child with a handicap such as the loss of an arm, go in for athletic events which require strenuous use of the arms -- tennis, swimming, baseball, and the like -- succeeding in which, he is adjusted and happy. The same child, trying and failing, or timid because of his consciousness of his defect, will develop an organ-inferiority-complex; the lowering of his self-esteem causes him to overassert himself in other ways. Thus the child will try to create a sensation by his traits, power over others, struggle for possession of everything about him, or use his infirmity to obtain sympathy and as an excuse for getting out of that which he dislikes. (I: passim).
Morton says that the inferiority-fear complex may be caused by other factors than that of organ-inferiority. He says:

"It may arise from any failure of adaptation on the part of the child--from examinations, choice of a career, the rivalries of an older brother or sister, the all-powerful élan of the father, the domination of a teacher. Children are subjected to many belittling influences. They are still largely under the spell of that dogmatic conception of duty to one's neighbor which consists in lowly and reverent abasement to teachers and masters gratuitously assumed to be one's "betters." They are pitchforked into a rigid educational system, and their divinely inspired schoolmasters, administrators and mental specialists, finding them misfits, conspire to fill their minds with ideas of inferiority, whilst those who fit better into the system are extolled as superior and intelligent. Teachers only too often are "hypocritical apologists of discouragement" (24:89)."
Fear of the Water

Man is not by nature fitted and equipped for the water as many other animals are almost from birth. Man by training and acquired skill is able to propel his body through water by the process which we know as swimming, and to keep his body on top of the water with the minimum movement, by floating.

It was once a theory of a few that man in his most primitive state, infancy, would by instinct swim when placed in water under proper conditions. To test this theory, Watson experimented with a new-born infant. He lowered the infant slowly, while supporting the infant's back on the experimenter's hands, into a galvanized tank which contained about ten inches of water of body temperature. The result obtained was a violent expression of fear on the infant's face, temporary stopping of breath followed by deep rapid inspiration and uncoordinated body movements. This is very different than the results obtained with other young mammals who are by nature intended for water as well as for land and who when first placed in water swim comparatively well (62:243).

It has been stated by one who has watched many new-born infants that they never fail to cry when the spray of lukewarm water touches their body, although the force of the water may have been very moderate.

Children should not, however, fear the water. Early impressions do a great deal toward causing fear of water to be-
some established. Baths which are disagreeable because of
temperature which is either too hot or too cold may cause a
dislike or a fear of water. If in the bath soap gets into the
child's eyes, causing pain and discomfort, or if the child is
scolded and spanked for splashing or squirming, these unpleas-
sant memories, because they are associated with water, may pro-
duce a conditioned fear of water. When all of the conditions
which are associated with the water are agreeable, and the play
spirit is added to the bath, the child usually grows to like
the water and enjoy the bath. Of course in many instances the
child who has hated being scrubbed and who tried when possible
to escape the bath-tub or the shower, is first to find enjoy-
ment later in the "old swimming hole" and to develop into a
splendid swimmer. This is perhaps more true of boys than of
girls, as their love of adventure, and the gang spirit with
its social commandment of what a boy must accomplish in the
way of motor skill to be well thought of, have greater influ-
ence than with girls, who are naturally inclined to be more
timid and less aggressive, in adventure.

It is interesting to note the difference with which chil-
dren take to the water at the beach; some play and splash and
have a splendid time, others scream with fright when brought
near the water, and when left to their own devices venture
only near enough to obtain water for their pails, and then
scurry back to their sand pile. Some children go willingly
with their parents, wading out until the water is deep, and
laughing when they are given a ride while one of the parents swims. Others cry out in fright when carried out on their parent's back, although they are not touching the water. Of course this latter effect may be produced through the child's being frightened on some previous occasion in the water.

Every teacher of swimming knows that there is nothing so inhibiting to the pupil's mastery of skill in the water as fear. It is the swimming teacher's biggest problem, and one which she meets whenever a new group of beginners come to the pool for their first lesson. Every group contains a mixture of personalities, each one of which has been subjected to different home conditions, type of training, environmental influences, and experiential histories. The reaction of each of these novices to swimming is dependent, at the beginning, largely upon these influences. The problem for the teacher, then, is the method by which she will attack and conquer the fears with which some of her pupils enter their first swimming lesson.

There are the self-reliant beginners; those whose self-reliance may not be great but who will have confidence that the teacher will not expose them to danger; those who enter as they would a content—determined not to be beaten; those who have a great desire to swim, believing it to be a desirable accomplishment from a standpoint of health, sociability, or from some other personal reason; those who have liked the
and who have participated in water sports before and who wish to become more proficient. These pupils, of course, have a normal amount of apprehension concerning new and unfamiliar steps, but these fears are short-lived, and easily overcome in such individuals.

There are also other types of beginners, timid, anxious, scared, or, it may be, in a panic of fright at the thought of having to go in the swimming pool. Of course such fearful beginners will absolutely never be found seeking a lesson in swimming, and it is only in schools where swimming is compulsory that this problem will arise. Where there is no school physician to issue such excuses from swimming as are necessary, the problem for the fearful one is solved in a "doctor's excuse," which exempts her from swimming, and thus the fear does not have to be met and the situation is relieved. But when a school is fortunate in having a physician who examines all pupils who claim exemption on the grounds of illness, there is little hope for the fearful one to fly from that which she feels is a threatening danger.

This is a very serious matter, a matter of great moment to those who experience such fears; and to the teacher it is also a matter of great moment, and unless she has a full appreciation of the inward struggle and emotion which attacks the victims of such fears, she cannot give them the sympathetic, understanding treatment which such cases truly deserve.
The causes of such fears are varied. Some by inheritance and environment have an apprehensive, timorous personality, and such persons fear anything outside of their ordinary environment. Others have been made fearful by unwise warnings or threats which greatly impressed their imaginations. Others have been impressed with tales of water fatalities. Some have witnessed near-drownings or drownings, or have had such accidents in their immediate family; often such fears are caused by practical jokers having "ducked" their frightened victim, pushed her into water beyond her depth, and the like; others have experienced minor or major water accidents.

One cause has been purposely omitted that it might be taken up as a separate matter as the seriousness of the offense deserves. There are some teachers (unworthy of the name though they are), who for some selfish motive of their own force the pupil through fear of the consequences to go into deep water, or to dive before the pupil is ready for the step. This is absolutely unnecessary and a great injustice to the pupil. It is rare that a pupil thus forced ever regains her confidence and learns to feel normally secure in deep water. It absolutely cries out against all sane laws of pedagogy; it is comparable to insisting on a student's translating several lines of Caesar's Gallic War before having mastered the rudimentary steps of learning Latin grammar. Fear can thus be instilled by the individuals whose first duty it is to banish or subdue anxiety and dread. Swimming is a
kill which is both beneficial and enjoyable, but when it is forced with the lash of a supercilious teacher who cares more for the fact of progress and accomplishment than she does for the result to the pupil, then swimming does not bring the pleasure, benefit, and service to the individual for which it is meant. The day when character was tested by ordeal is passed, and in the light of better educational methods there is no need to make any accomplishment appear anything but a desirable and pleasant thing to the pupil.
CHAPTER VI

Correction of Fear

Although a normal amount of fear is necessary in life to protect us from dangers, to spur us on to greater effort, to develop a rugged strong character and to lend color and variety to life, yet this emotion may be intemperate in its action and must be kept under wise control. When the fears make us less efficient, begin to worry us, and prey upon the mind they must be dealt with and corrected.

Avoidance by the parents and teachers of anything which would cause the child to be timid and fearful, and the correction of the early fears the child may exhibit, by gentle methods, explanation, and encouragement is the most assuring and effective way to banish unnecessary, harmful fears; the child's confidence is gained and his future is made more secure. This does not eliminate cautioning the child to avoid real dangers; however, the method of telling the child of dangers should be of such a nature that it does not have the effect of producing fears. Groves says:

"It must be pointed out that the parent is not denied the opportunity of teaching children to avoid danger because of the risk of creating fear. Danger can be treated as a purely intellectual matter. The harm comes when the child is led to an emotional reaction; when, for instance, stress is put upon
the risk by rehearsing in detail consequences that through the imagination of the child bring about emotional reactions. Children need to be taught the facts that involve risk. Formerly however, parents often have added to this purely objective statement of fact a large quantity of emotion, believing that in that way the teaching could be more effectively impressed upon the child. If a child is treated as a reasonable being from early years there is no need of adding this emotional pressure, and by the wiser statement the child is freed from any likelihood of developing fear attitudes. It must not be forgotten that fear sometimes by holding the attention, becomes a fascinating suggestion and brings the child under the domination of the very thing which he is trying to avoid" (26:93-94).

Burnham gives direct action as a remedy for fear: "The most drastic and usually the most effective remedy for fear is direct action. If you can induce a child to face what he is afraid of, then the fear disappears, and the object is apt to become a matter of special interest. Associated with it is the stimulus of success. It is the same with adults ....... Thus too, the practice of psychiatrists in cases of morbid fear is to make the patient, if possible, do the thing that he is afraid to do and face the situation he is afraid of. If he is afraid of outdoor air, he is told to sleep with his windows all open. If he is afraid to eat this or that, he is told to eat anything whatever that he wishes to. This, too,
is the method usually employed and wise teachers in removing
the fears of children. In case a child once meets the object
of fear there is at least on the next occasion the memory that
he has met the fearful situation and is still alive.......... It
is, of course possible to overdo this method. It is possi-
ble that the individual may become a specialist in meeting dif-
cult situations and in attacking all sources of fear that an
overcompensation may result" (12:424-25).

Moore says that "emotions are reactions to intellectual
insights into a situation." He says that we may intensify fear
by our mental attitude of thinking and dwelling upon the cause
of the fear.

"If we turn our attention to other things the emotion is
likely to die away more quickly. It is however possible to do
more than this. If we attempt to make a psychological analysis
of an emotion before the focus point of consciousness, not its
cause but the emotion itself, it melts away like wax in front
of a hot fire. Emotional states, as such, cannot be brought
to the focus point of consciousness, and any attempt to do so
makes them dwindle away at once" (39:316).

Burnham says that a knowledge of facts that prove fear to
be groundless is the best inhibition in the mental field:

"In the mental field anything whatever may become associ-
ated with the fear-producing stimulus as an inhibition. Apart
from other emotions that inhibit fear, the most effective are
the knowledge of facts, which show the fear to be unfounded, of
means of removing the object of fear, the memory of past successes in overcoming fear, and so on, with a whole series of preventives up to the sublimated attitude of the hero who feels that it does not matter whether he is afraid or not; but a vast number of simple, even banal and grotesque associations, may be distinctly effective. Anything whatever that serves as a means for thoroughly concentrating attention will act as an inhibition" (12:420).

To sum up the effective known remedies for the prevention or fear, or for the correction of a fear which has already been experienced, we have (1) a knowledge of facts to prove fear, in the particular case, to be unfounded and unnecessary; (2) memories of past experiences which have been successful and pleasant help to eradicate the fear; (3) the fear may be sublimated; (4) associations, maxims, and the like sometimes lessen the fear; for example: "If you don't succeed, try again"; (5) concentration of the attention on the work at hand rather than on the fear is a splendid remedy, (6) auto-suggestion or encouraging suggestions from others may aid in the overcoming of fear.

The physical means of overcoming fear is to conquer it by direct action. Doing that which one fears to do; facing the fear and by force of will power compelling the body to respond despite the emotion of fear, is both a drastic and short cut to the overcoming of fear. As this is a drastic action on the part of the fearful one, involving courage and pluck
as well as nerve energy, this mode of procedure is conditioned by the attitude of the fearful one, and may be encouraged by another but never forced, as it is primarily an act of the will, which determines the decisive action.
CHAPTER VII

Types of Water Fear.

Fear of water is one of the most common fears. It may be caused by some painful, discomforting, or frightening experience happening to an individual while in the water. The water itself may have been the cause of the resulting fear, or because it is connected with some bad experience, though not the primary cause of it, may have become thereafter associated in the memory so that it alone without the connecting experience may cause fear at future instances. Nor is it necessary that there be a physical experience, for a sensitive person impressed through purely imaginary pictures of one type or another may retain a frightening mental image concerning the water, which may cause as much alarm to the individual as an actual experience to one more phlegmatic.

A swimming teacher once had a note brought to her by a child, written by the child's mother and requesting that the child be permanently excused from swimming. The reason given was that the child's grandfather had met an untimely death by drowning, the child's father had drowned and therefore the child "inherited a tendency to drown." The result of such maternal reasoning and fears on the child is at once obvious, and such fears require drastic reasoning with and firm logic to re-educate one so handicapped. Of course in a case of this
sort, the first one to be reached is the mother, for little progress could be made were such a child forced into a swimming class with a mind thoroughly impressed by the fatalistic maternal impression that she inherited a tendency to drown as her paternal ancestors had done. A child thus forced could not at once accept with faith that which a mere teacher would tell her, and the result to the child's mental state and physical condition and nervous system could be nothing short of seriously injurious.

There is the more sturdy type of individual less prone to accept parental misgivings or those of their elders, and who venture to find delight in water sport and in the fun of good companionship. This type usually makes a game of overcoming his fears, and will analyze them and rout them unaided.

A physician once confided to a swimming instructor that he believed he had an inherited fear of the water. His family for generations back had been sea-faring people, and over a hundred of his kin had met death in the sea. It is to be doubted that we inherit fears. In this man's case, tradition, tales of calamities, and the memory of the awe and sorrow caused by these deaths at sea had so impressed him at such an early age that it seemed to him the fear had been inborn, when in reality the childish impressions, forgotten in a happy inland later life, would stir and waken once they were roused by the appearance of water. He was a good swimmer, for he had
overcome his fear sufficiently to learn in an indoor pool where he had companions. He said that, while others were around him and the water was quiet, he enjoyed his swim. If, however, he was in the pool alone, the fear returned and would become so strong as to force him to discontinue his swim. Also the fear was inhibiting if he went to the lake to swim when there were waves.

Very likely the fact that he enjoyed his swim in the quiet pool, surrounded by his companions, was due to the fact that in numbers he felt safety, and in the pleasure of conversation and competition he had little time for dwelling on memories. The fear induced by solitude in the pool is a most natural one, and there is, perhaps, a legitimate cause for that fear -- the knowledge that there is no one about to aid him should the necessity arise, and lack of perfect confidence in his own ability as a swimmer. The waves probably aroused memories of the tales of shipwreck and drowning that had been told him, and the fears of childhood were re-awakened.

Timidity and fear may also be brought about through other forms of suggestion. In one instance a college girl, who had made some effort to do what the others in her swimming class would do, would not persist in the attempt, and would after a few seconds of trial stand to one side, seemingly pale and shaken by the attempt. Upon questioning her it was discovered that as a child she was never permitted to do anything which required very much physical effort because of her small
delicate build. Her mother told her she should never swim because the effort would cause her to strain herself; and that, because she was thin, she would only sink to the bottom anyway. This had so impressed the girl that she was mentally handicapped in the way she attacked the swimming lesson, lacked all confidence in herself, and, therefore, would give up before she could prove to herself that she really could float. After this interview, when these facts were made known to the pupil and she saw that she was really inhibited through this imaginary weakness, which a physical examination disproved, her timidity rapidly disappeared, and the swimming lesson became a profitable pleasure to her.

Another pupil, older than the rest, came to her swimming teacher after the second lesson, telling her that she could no longer continue swimming. It frightened her so, even to enter the water, that she had decided she would leave school rather than submit to the rule of compulsory swimming. The young lady was in a very nervous state, and cried bitterly as she stated that she had always been afraid of the water, and that the thought of going in was causing her sleepless nights and worryful days. She said that her heart pained her when she was in the water and that she became weak and felt as though she would faint. She was first sent to the college physician for a physical examination, and when she returned with a negative report, was questioned concerning her previous experience and childhood. She was the only child of a widowed
mother, who was always solicitous for her, and on whom she had completely depended. She had never been forbidden to go to the lake with other children, yet she never cared to go with them, preferring to remain at home with her mother. When questioned concerning her memories of the bath as a child, she said that her mother had always bathed her up to the age of about twelve, and this time she remembered as a pleasure because her mother and she would make a play of the bathing time. After her mother allowed her to remain alone while she bathed, she became conscious of a feeling of weakness, and could stay in the bath only the shortest time; would feel her heart palpitate (although she said the water was never too warm), and would be so afraid that she would shiver.

She was finally persuaded to go into the pool and given the permission to leave as soon as she felt she must. She was also encouraged to walk out gradually to an increasing depth while holding on to a bamboo pole, each day progressing a little farther. She seemed to enjoy the mothering which her water "buddy" and some sympathetic companions gave her. When the instructor gave her exclusive attention to her and encouraged her efforts, and had the rest of her pupils cheer when she accomplished some little feat, the girl glowed. By degrees her dependent state was explained to her, and her companions, while rewarding her individual efforts with cheers, were never allowed sympathize with her dependence. Her every
independent effort drew praise from her fellow students and also from her instructor. Her self-respect increased as her dependence decreased, and she began to feel herself one of the group, accepting the responsibilities of the group. In a short time her instructor was able to give her another "problem case", and she took great delight in showing this weaker companion just how to accomplish each step, and helped her to overcome her fears. In the meantime, her responsibility to this pupil whom she considered weaker than herself aided her in overcoming her own fears, and lent courage and joy to her own performance.

The most common and most reasonable of all fears of the water is the fear of choking. This fear is brought about by the disagreeable experience of breathing in a few drops of water, which causes a choking or stifling sensation. An allied fear of not being able to regain a standing position usually besets the timid beginner. These fears are the most common and perfectly logical; they are dispelled only when the beginner learns the correct method of breathing while in the water, and how to regain the footing from either a face-float or back-float position. When this is accomplished and practice has made these fundamentals habitual, the fear should entirely disappear.

Generally the pupil who has had some disagreeable experience, the memory of which is paramount in her thought
while in the water, can lessen the effect by reasoning with herself with the teacher's assistance and convincing herself that there is no danger to her in the lesson, and that, if she concentrates on the lesson and on that which she is trying to do, there will be no opportunity to dwell on the fear.

The buddy system, whereby each pupil has a buddy who is always near, together with some method of demarcation between water of chest depth and deeper water—such as the use of bamboo poles on either side, or a rope extending across the pool—and the knowledge that the instructor is always alert and watchful and ready with her whistle, which means prompt silence and attention, will usually suffice in gaining the confidence of the pupil who fears getting beyond her depth.

When one has been frightened by thoughtless people, by being ducked, pushed beyond his depth, or threatened, this sometimes will cause a fear reaction which exerts its influence when the person feels danger in the presence of others about her. A well regulated pool, with rules which allow for no intimidating of the pupil by either teacher or companions, together with the sympathetic help expected of all toward every pupil, will soon give renewed confidence and dispel the fears of this type. Also the pleasant experience of having a helpful teacher and buddy will serve gradually to erase the unpleasant memory.

Fear of choking is easily overcome as the pupil through practice learns to exhale while under water by expelling the
air through the nostrils, and then raising or turning the head and inhaling through the mouth; for if she is exhaling through the nostrils while her head is under water, she cannot at the same time breathe water up into the nose, and if she inhales above water through her mouth she cannot breathe in the water, which is trickling down her face, into the nostrils and possibly into the windpipe. After the pupil has accomplished the art of correct water breathing, she will no longer fear choking.

The fear of not being able to regain the footing from a face-float or a back-float is a very common fear among beginners until they have so mastered the fundamentals of regaining the standing position that through much practice it becomes habitual. After several successful attempts when instructions have been carefully followed, the pupil gradually loses her fear. There must be very definite instructions given. From a face-float the pupil should regain her stance by pulling the extended arms straight down to her sides, and at the same time raising her head, and bending her knees, which are kept close together, toward the abdomen. All this must be done at the same time; and, as the trunk assumes an upright position, the feet are placed on the bottom. This can be practised on land first, the pupils lying prone on a practice stool, arms and legs extended as for a face-float. The command should be given—"Arms pull down to the sides,
knees upward bend and head raise--- One! --- Stand! --- Two!"

If no practice stools are available, the same exercise may be executed from a standing position, arms stretched upward; the command may be: "Arms forward-downward, right knee (or left knee) upward raise, head bending backward---One!---Position---Two!" In this latter land or water drill taken from a standing position, the instructor must explain that, while it is necessary to bend only one knee because the other leg must support the body, in a floating position both knees bend simultaneously. In the water the pupils may hold on to the edge of the trough first practicing with the legs, and when this is accomplished, adding the arm pull to the sides, then standing.

To regain the standing position from a back-float it is expedient to bend the head forward and at the same time to bend forward from the waist, reaching forward with the arms and bending the knees then stretching the legs downward as the arms pull forward downward and standing.

Fear of diving is eliminated by experience, and if the pupil is taught to dive in water sufficiently deep, and told that when entering the water that the arms should be extended just in back of the ears and the head tipped slightly forward; and than when the body has entered the water the head should be raised, the finger-tips pointed upward to bring her more quickly to the surface, the beginner will not hit flat on
diving; she will not go too deep, and the experience will not be unpleasant. It is also necessary to precede the diving lesson in deep water, with a lesson on the sitting dive, kneeling dive, one-leg dive, and other fundamentals, which all good swimming teachers know. It is a mistake to insist that pupils who have not mastered the fundamentals of breathing, of floating, and of changing body positions in water, shall dive in water beyond their depth. Every textbook of swimming agrees on definite and sane procedure in instruction. A pupil should desire to learn to dive; she should be confident of her ability to at least float and breathe correctly, and of her ability to change body positions in water, before beginning diving. It may add to the pupils' feeling of security if the teacher holds a bamboo pole near to the surface of the water when the novice takes her first deep water dive. Of course it is also a logical measure and an understood fact that the beginner shall have had some previous experience in deep water before starting to learn diving in deep water. If diving is correctly presented and taught, all fear should in time be eliminated and the thoughts of the pupil directed to the skill of her accomplishments.

If the pupil is fearful of an undesirable physical reaction such as cramps, headache, or earache, and the like, there should be an examination made by the physician to determine if there is need for medical attention. If the water
and air are sufficiently warm, and the swimming period is taken at a time which allows the pupil a sufficient time for the digestion of food before she enters the tank, and if she follow the rules of good health habits, there normally should be no cause for stomach cramp. For sensitive ear conditions it is well for the pupil to wear ear-stops while in the water; these may be made of greased wool or cotton; or rubber ear-stops may be purchased for the purpose.
CHAPTER VIII

Specific Gravity in Relation to Swimming.

The swimming teacher should have a full knowledge of precisely what happens to the inexperienced swimmer who gets beyond her depth, and understand just why she sinks, and know thereby what she must teach the beginning swimmer, so that the pupil is armed with knowledge and skill which will serve to act as a preventive of fear, and a means of safety to her as a swimmer.

The majority of drownings are brought about largely by inexperienced swimmers' getting beyond their depth and then, tired or fearful, reaching for the bottom with their feet; and then, failing by reason of the depth of the water and feeling themselves sinking, stretching up their arms out of the water. This of course causes them to sink farther down; then as they open their mouth to cry for help, or as they try to breathe in air, water enters and chokes them. This causes a more frantic effort to get air, and greater spasmodic action of the body; the person feels suffocated, and if not rescued, finally becomes unconscious and sinks under the water.

An analysis of the reasons for this has been given with simplicity and clarity by Sinclair and Henry.

One who teaches swimming should have a scientific understanding of the physical laws with which she must cope and
utilize in her work. She should understand the law of specific gravity which is the underlying principle governing all efforts to float or swim.

Specific gravity is the ratio of the weight of a body to the weight of an equal bulk of some other body taken as the standard or unit. Water is usually taken as the standard in the case of solids.

The various parts of the human anatomy each have their own specific gravities and these combined constitute the entire specific gravity of a human body. Fat is the only part of the body which is lighter than water and has a specific gravity of 0.92. Adipose tissue constitutes about one-twentith of the weight of an adult. The specific gravities of other parts of the body are as follows: muscle 1.085, brain 1.04, soft organs commonly 1.05, lungs (which are aerated) 0.94, bone which is the heaviest part of the body 2.01. The lightness of the fat is more than counter-balanced by the heaviness of the bone tissue, approximately 10 1/2 pounds in the male and 9 pounds in the female, so that when in water the human body has a slight tendency to sink. This tendency decreases in proportion to the quantity of the body immersed in water, as the portions of the body out of water and not supported by it become as added weights to the parts which are submerged.

Continuous raising of the body out of the water and
rapid spasmodic action will quickly exhaust the inexperienced swimmer, and the raising of arms or other parts of the body out of the water will tend to act as an added weight to the submerged part and to sink the body.

A person with body fully immersed, lungs well inflated, and chest expanded will float. When the swimmer turns over on the back with arms extended and head well back, if there is sufficient air in the lungs the body may float either in a vertical or horizontal position, and in this position the person is enabled to breathe. Should the arms be thrust upward out of the water the body tends to sink, also if the head be brought forward the weight of it will tend to sink the body.

From the weight of the water displaced by a body, the bulk of the adult body is found to be equal to about $2\frac{1}{2}$ to $2\frac{1}{2}$ cubic feet. The weight of this quantity displaced by complete immersion is approximately 156 pounds. The specific gravity of the body may vary under certain conditions. A proportionately large amount of fat will diminish the specific gravity and thus a fat person floats with more ease than one who is bony or muscular. The person with a larger proportion of bone has an increased specific gravity. The heaviness of the skeleton may be overcome in the water with some practice, provided the chest capacity is large and the organs of respiration normal.
Women and children have a greater proportion of fat and smaller, lighter skeletons; thus they have less specific gravity than men and can be taught to float more easily than men.

A person with a small contracted chest cannot float as easily as one whose chest is large and capacious. During inspiration the body has a tendency to rise slightly out of the water and during expiration, to sink. When the face is under water and the air forced out of the lungs, the specific gravity is increased and the body sinks. Under ordinary conditions a human body with lungs full of air is buoyant. Practically everyone can float with at least the face out of water, provided the head is kept well back and the rest of the body submerged. The lungs must be kept full of air and the breathing regular (52:58-60).

Edgar Allen Poe in his story "Mystery of Marie Roget" gives us information on specific gravity which is worth recording. This story was published in the year of 1842.

"...Now the human body, in general, is neither much lighter nor much heavier than the waters of the Seine, that is to say, the specific gravity of the human body, in its natural condition, is about equal to the bulk of fresh water which it displaces. The bodies of fat and fleshy persons, with small bones, and of women generally, are lighter than those of the lean and large-boned, and of men; and the specific gravity of the water of a river is somewhat influenced by the presence
of the tide from the sea. But, leaving this tide out of the question, it may be said that very few human bodies will sink at all, even in fresh water, of their own accord. Almost anyone, falling into a river, will be enabled to float, if he suffer the specific gravity of the water fairly to be adduced in comparison with his own—that is to say, if he suffer his whole person to be immersed, with as little exception as possible. The proper position for one who cannot swim, is the upright position of the walker on land, with the head thrown fully back and immersed; the mouth and nostrils alone remaining above the surface. Thus circumstanced, we shall find that we shall float without difficulty and without exertion. It is evident, however, that the gravities of the body, and of the bulk of water displaced, are very nicely balanced, and that a trifle will cause either to preponderate. An arm, for instance, uplifted from the water, and thus deprived of its support, is an additional weight sufficient to immerse the whole head, while the accidental aid of the smallest piece of timber will enable us to elevate the head so as to look about. Now, in the struggles of one unused to swimming, the arms are invariably thrown upward, while an attempt is made to keep the head in its usual perpendicular position. The result is the immersion of the mouth and nostrils, and the inception, during efforts to breathe while beneath the surface, of water into the lungs. Much is also received into the stomach, and the whole body becomes heavier by
the difference between the weight of the air originally dis-
tending these cavities, and that of the fluid which now fills
them. This difference is sufficient to cause the body to sink,
as a general rule, but is insufficient in the case of indivi-
duals with small bones and an abnormal quantity of flaccid or
fatty matter. Such individuals float even after drowning."

The Red Cross gives the following explanation of the
physical concomitants of drowning:

It is now agreed that though the stomach of a drowning
person may fill with water, the epiglottis keeps the water out
of the lungs, and allows but a few drops into the wind pipe as
the drowning person struggles for air; the muscle then closes
and thus prevents the exhalation of air from the lungs as it
prevents the entrance of any quantity of water. The blood does
not receive oxygen from the lungs, the lungs fill with carbon
dioxide, the diaphragm becomes paralyzed and the heart action
seems to stop, and if aid is not rendered the heart does stop.
Artificial respiration must be substituted until nerve centers
recover their normal function. The type of artificial respira-
tion recommended by the American Red Cross for this as well as
all other forms of suffocation is the Prone Pressure (Schaefer)
Method of Resuscitation. It is considered the most effective
method as it utilizes the chest to produce a natural inhalation
of air. "Red Cross Life Saving Methods" (Washington, 1927).
Teachers should be familiar with the facts given above.

Most swimming teachers base their method of teaching on the methods of other successful teachers, by observation of such methods which they have seen successfully used by others, and by observing their own pupils needs finally developing a method or methods of their own. It is to be doubted that any one particular method, or cut and dried procedure, would entirely answer the needs of each individual pupil. It requires a lively interest on the part of the teacher to enable her to see the particular problems of her class as individuals, and although she may have a general method of presenting her material so that it reaches a large majority, she will always have to modify and change such material to the individual need.

There are certain fundamentals which all good teachers must know, and these are based on the law of specific gravity. For the rest, the teacher as an individual personality may, by experience, adopt certain methods as her own, adapt them to the needs of her pupils, in a manner which is best suited to her group. It is possible for one teacher to use a method successfully which would be for another a complete failure; the personality of the teacher is so entirely a part of the success of her teaching that it is imperative that she test her method by the progress of her class as well as the enjoyment her pupils make in the lesson.
CHAPTER IX

Correction of Fear of the Water

The teacher of swimming must start from the very moment she meets a new group of novice swimmers to fight that which will tend to retard their progress—fear.

The first lesson should not be a lesson in the water, but a meeting of the group with their instructor. The purpose of this meeting should be to explain pool rules and regulations, and to become acquainted with the class as individuals. The procedure should be on a similar order to the following suggested one:

1. Obtain and record the names of the pupils, either before the first class or during the first meeting. Give each pupil a number, the numerical order following the alphabetical list. This facilitates matters of attendance taking in the pool. If the temperature of the air and water is sufficiently warm, the attendance may thereafter be taken in the pool itself, and if it is too cool the pupils should have their numbers checked on entering the pool. This the teacher should explain at the first meeting. (Prevention of chill.)

2. Showers should next be mentioned. It should be insisted upon that every pupil is expected to take a warm soap shower, followed by a cold shower before getting into tank
suits. (Good hygiene, prevention of chill, elimination of fear of uncleanliness and of disease.)

3. The method of sterilization of suits by the school should next be explained, where to obtain the suits when they enter the dressing room, where to leave them to be collected for sterilizing after the lesson should be told the pupils. (Elimination of fear of wearing suits which are common property among the swimmers.)

4. The method of sterilization of the water in the pool should be explained in detail; it would be well to tell how the chemical or ray acts upon and destroys germs. Here also the teacher should bring in the fact that the pool should never be polluted through dirt tracked in while going from pool-dressing room to water; that feet must be washed again outside of the pool before getting in. Hygiene in the pool is demanded, and the trough use for expectoration and overflow explained.

5. The boundaries which mark water of chest depth from deeper water should be told of, and also the methods of protection of the individual should be dwelt upon. A suggested method which is an excellent one, is the buddy-system which the American Red Cross Life Saving Corps recommends, whereby every beginning and advanced pupil has a companion who enters the pool at the same time, helps them, criticises their work, and never leaving them, and in return having the same service
performed for them by the one they assist. Thus the buddies look out for and care for each other. (Gives a feeling of security, and pleasant companionship)

6. The teacher should next explain the rule of quiet conversation and no shouting or yelling in the pool, so that instant attention can be called in case of need. Regarding this same rule it may be told that the teachers' whistle is the sign for silence and immediate attention for further orders or directions. (Suggests the awareness of the teacher to dangerous situations, and her readiness to meet them; gains confidence of those who are doubting their ability.)

7. Water-breathing, which is the antithesis of ordinary land breathing, should be explained; practice it then—inhaling through the mouth, exhaling through the nose. The pupils should be told that swimming is largely a matter of correct form in breathing, and after this is accomplished the rest is very simple; and instruction given to practice it at home before the first lesson in the pool, using a basin filled with water, inhaling through the mouth, then exhaling with their face in water, through the nose. Encourage them to open their eyes under the water, and to try to inhale and exhale rhythmically and slowly. Explain that one may see under water, equally as well as on land. (This partly alleviates the fears of those who have before had bad experiences by breathing in the water and choking.)
8. Next the teacher should encourage the pupil by assurances that she will never ask them to do anything that would endanger them in any way, and that if they will express their confidence in this fact by trying to do each progressive step that they will soon learn to swim. Here the physical truth that a body will float on water may be mentioned, and the ways of sinking the body told of and recalled to their minds. (Confidence that the impossible is not expected of them, and reasoning as to the fact of floating; this may recall to the minds of those who have had the experience of sinking at one time or another, the reason why they did sink, and that with proper use of the body this would not happen again.)

9. Finally the class should be warned against going into the pool when they are physically unable, have infectious diseases such as colds, skin trouble and the like, for the protection of themselves, and others; and that in such instances they are excused from swimming by reporting to the instructor. (Elimination of fear of disease, and certainty that their health is considered.)

The next lesson should be given in the pool. It should consist principally of water games, in which correct breathing and ducking under the water have some part. During this lesson the teacher is enabled to get an introductory glimpse into the various personalities of her pupils. Unless the pupils having inhibiting fears have confided them to the teacher before this
lesson, the teacher may judge for herself through the attitude displayed by the pupils toward the water.

For special cases that do not respond to the general treatment, and who do not accomplish correct method of breathing, face float and regaining of the standing position in a few lessons, yet seem to comprehend the instruction and make an attempt to follow it, special steps must be taken to discover and eliminate that which is inhibiting their progress. Those who "cut" the lessons without reason usually have the same inhibition—fear.

For such cases at Chicago Normal College, the method which we use with great success is as follows:

1. A private interview, which takes the form of a friendly talk with the individual.

2. The individual fills out a questionnaire which is expressly for the purpose of discovering the source of her fear.

3. Remedial treatment suggested from the information gained through the interview and questionnaire.

4. Special attention and treatment given during class work.

5. Never-failing acknowledgment of progress made, no matter how slight, by fellow classmates and teacher.
CHAPTER X

Swimming Questionnaires.

The swimming questionnaire is a valuable way of establishing a rapport between the timid or fearful pupil and the swimming instructor. This method allows the pupil time and help in analyzing her problem, and perhaps for the first time she becomes introspective and gains a clearer view of her trouble, without which it is almost impossible to correct the difficulty. For the teacher it is also of great value, for unless she understands what causes the fear reaction of the pupil toward the water, there is much time wasted while various methods are experimented with in an effort to help the pupil.

After the questionnaire has been filled out, the instructor should have a conference with the pupil and go over the questionnaire with her. The problem should be explained to the pupil, and then she should be told on what to work in order to help overcome her difficulty. It may be that she should concentrate on the correct method of breathing, or the correct way of regaining her balance, or on relaxation of the body, or on turning her attention from the fear while she is in the water to the analysis of that which she is trying to accomplish. Possibly the teacher should suggest that the pupil enter the pool prepared to get the maximum of fun and joy there, and relieve her for a while of the thought that she must do this or...
that until she herself desires to learn to swim, convinced that it is a good sport and fun to learn, and to compete with others in simple fundamentals. The teacher must of course be guided by the type of case, the degree of the fear, and the result she desires to obtain, before determining the treatment.

As a result of the swimming questionnaire given to 100 fearful novices the following knowledge was gained.

(1) Age When Fear Was First Experienced.

The ages when fear of water was first experienced were reported as follows:

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Six did not remember when they first experienced fear, and replied that they "always feared the water".

(2) Types of Fear Experienced

The following types of fear were experienced by the pupils:
feared putting their head under water—afraid of choking.
21 feared that they would be unable to regain footing.
8 feared that they might get beyond their depth.
5 feared their supposed inadequacy to meet the situation.
4 feared cold and cramps.
3 feared having others near them in the water.
1 feared headache caused from exercise in water.
1 feared the noise of the water which hurt her ears.
1 feared the height in diving.

(3) Causes of Fear

The reasons to which the fear was attributed, ranged as follows:

12 pupils had experienced what they felt was near drowning.
10 pupils had experienced minor accidents which caused severe fright.

Threats and warnings were said by 34 pupils to have impressed them greatly, and to have effected their attitude toward water.

23 were impressed by warnings of parents.
8 were impressed by warnings of other relatives or friends.
3 had been threatened by their mothers.

Parents should of course caution children so that they will not take dangerous risks. Psychologists agree, however, that any emotional reaction should be avoided, and the explanation of the danger should be an entirely intellectual matter, so that the child is not imaginatively impressed by the danger (Groves:26:93-94).

The imagination may be greatly impressed and a fear fixation result from reading or hearing of water fatalities or accidents as well as by seeing the actual happening. In reviewing the hundred questionnaires it was found that:
pupils had had water fatalities in their own family, and one pupil had witnessed the drowning of her brother.

2 had witnessed drownings at beaches.

9 had read of accidents which left a lasting impression.

89 had been greatly impressed by tales of water accidents.

With children, it often happens while in the water and left to themselves, that their play becomes rough. For the sensitive child to get a ducking, to be threatened in the water or pushed or pulled into deep water may be the cause of a severe shock, and afterward of extreme dislike for, or fear of, water.

Of the fearful swimming pupils; 27 had been "ducked" in water; 10 had been pushed or pulled into water beyond their depth; 7 had been threatened while bathing, and three had been threatened and "ducked". These experiences were thought by these pupils to have had a direct influence on their fear or timidity.

Such experiences in the water which leave lasting and unpleasant memories, as well as being a source of fear complexes which may find expression in many ways and retard the progress of the pupil in swimming until the attention becomes diverted from it. The task of removing this fear requires the teacher's ingenuity in testing the method which is best suited to the individual. Of the hundred fearful pupils, 44 claimed their fear was the direct result of a disagreeable experience in the water. Only five pupils stated that through a bad experience of this kind they had benefited. Of these--three said that
they developed more self-confidence, and two determined that they would learn swimming in preparation for possible later experiences of the same sort.

Only 16 of the pupils questioned reported that every member of their immediate families disliked the water. Concerning the families of these hundred fearful pupils, it was found that of their parents 17 fathers and 8 mothers could swim, 29 of the fearful pupils said their brothers swam, and 15 had sisters who swam.

(4) Age at Which Subjects First Entered Water

The age at which they first went to a bathing beach to enter the water was given as follows:

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It is of course advisable that a child become familiar with water play at an early age, and that this element be presented as a friendly element and not as a source of fears. Commodore Longfellow, Assistant National Director of First Aid and Life Saving, says that swimming is a kindergarten accomplishment and should be taught in kindergarten years; but when it is taught, the baby fears must be carefully overcome. He believes that even adult fears must be dealt with kindly and with understanding until all the fears and inhibitions are thoroughly chased away and eradicated. In his nationally wide experience he has found that children who have never learned to fear, learn to swim almost at once. Commodore Longfellow believes that until every little fear is overcome it is foolish to try to teach strokes, and claims that the first duty of every capable swimming teacher is to first banish fear and to develop confidence in the child.

The time it takes to overcome fear is quite individual. The majority will respond to such confidence systems as the Brink System. About five percent of beginners require special work to eliminate fear. It would be presumptuous to say that any one method of treatment would suffice for each type of fear; for as individuals differ in disposition and temperament, so must the treatment also vary. Another variant, and a most important one, is the teacher's influence on the pupil, and her personal conviction of the worth of the methods she employs.
If the teacher is sincere in her desire to help the pupil to overcome her fears, she will delve into the source of the fear and rout it in this manner by explaining away every little doubt which has become intensified by the play of the imagination.

It is much better for the fearful beginner to have a daily lesson in swimming, if possible; the water in this way becomes a familiar element and this eliminates the mental images and misgivings that so often occur when the lesson comes but once a week. A half hour period twice a week is likewise preferable to the hour swimming period which occurs but once a week.

Of the hundred girls who filled out the swimming questionnaire and who considered their fear serious enough to desire the swimming teacher's help in solving their problem, in addition to the confidence inspiring methods which were employed in the bi-weekly lesson, there were 29 who said that their fears were eliminated after about five lessons, and the remaining 71 considered their fears considerably lessened so that they were for the most part looking forward to the swimming lesson with pleasant anticipation. Once this is accomplished and the pupil is forgetting her fear and enjoying the water, it is a comparatively easy task to eliminate the fear entirely.

The correction of fear of the water, partially or completely overcome after the fifth lesson, was attributed to:
Methods employed in teaching-------------------28
Experience-------------------------------------19
Confidence in the instructor-------------------17
Determination, and auto-suggestion------------10
Confidence in "buddy"-------------------------6
Combination of those measures listed above----20
CHAPTER XI

The Swimming Lesson

After the individuals who have been inhibited in swimming have been helped to trace and analyze their fears and have had special remedial measures suggested to them according to the nature of the case, they become more truly a part of the class, and with the exception of some individual attention which they as well as the rest of the group need, in correction, suggestion and the like, the work of the swimming teacher progresses uniformly and well; the adjustment has been made.

The swimming lesson must be carried on in a scientific way according to the rules of pedagogy in order to be effective.

Each individual must be dealt with according to her personality and encouraged. Correction should be given in a kindly manner of one who says, "You are doing well; you can further improve by doing this suggested thing." The teacher should not over-correct nor be too zealous and over-teach, as this gives the pupils little or no time to adjust themselves, develop self-reliance and self-confidence, and to get the "feel" of the stroke. Aggresiveness, and determination to swim as well as some other person are best developed in a pupil if left to herself part of the time and with her buddy.
The following suggestions might prove valuable to the teacher of swimming:

1. Teach but do not over-teach; give the pupil time for unsupervised practice.

2. Encourage the pupils, be friendly, helpful; let them know you believe in their ability. Encourage the same friendly helping spirit among the pupils toward one another.

3. Give definite instructions, set up a definite aim, teach it step by step and then let the pupils practice it.

4. Watch for those who need individual training and help and change method to suit the need.

5. Let those pupils of similar ability work together.

6. In a free practice period, do not insist upon the pupils practicing definite strokes or preliminaries; if it is a free practice period let it be such and allow them the privilege of working on something they like and desire to learn.

7. Inspire confidence so that pupils will feel free to come to you with their difficulties, knowing you will understand and help them.

8. Do not try to force the pupils beyond their capacity; let the progress be gradual, thorough, and pleasant.

9. Let each pupil know of his success, and feel successful—never defeated.

10. Encourage the pupils to recognize any accomplishment regardless how simple, which has required a persistent struggle.
gle on the part of any individual with hand-clapping and words of praise.

11. Have definite tests and rewards such as the Red Cross Life Saving Test: Beginners' Test, Swimmers' Test, Junior Life Saving Test, and the Senior Life Saving Test.

12. Grade according to the individual's capacity and progress made according to ability.

13. Have frequent games in which those of like ability participate; and games for all regardless of ability.

14. Avoid compelling pupils to do anything that you cannot by suggestion or some other method do of their own free will. Omit any terms that may suggest fear, such as "dead man's float."

15. Teach by imagery as much as possible; help the pupils to visualize the stroke.

16. Make a pleasure out of every activity.

17. Have frequent contests of ability among those of like ability, and have the pool balcony filled with those who will cheer the contestants on, in defeat as well as in victory.
CONCLUSION

Swimming has made great strides toward becoming one of the greatest national sports of America. Where there are no natural facilities, splendid swimming pools are taking the place most adequately. City park systems, playgrounds, schools, community centers, clubs and the like are meeting the demand for this popular recreation.

Various factors combine to popularize swimming as an enjoyable and profitable form of exercise. Perhaps it is necessity that urges preparedness in this instance, for travel has increased and water safety is a necessary accomplishment, since beaches and summer and winter resorts advertise the delights of lake or ocean. The American Red Cross has done more than any one factor in popularizing water-safety. Floods and boat disasters have impressed upon the thinking public the value of being able to swim, not only for healthful recreation, but also as a preparation for emergencies which may arise in which one who can swim may save not only his own life but sometimes the lives of his fellowmen.

Girls as well as boys are being trained to propel their bodies through water with the speed and accuracy as on land. Women compete with others of their sex in skillful water events which fifty years ago might have been thought impossible.

Red Cross Life Savers are spreading the gospel of water safety and the nation is eagerly responding. There are few in
this era who are not at least interested in their appeal for competent instructors to teach all—young and old—to swim.

As children at an early age are most receptive to swimming lessons it is truly a "kindergarten accomplishment" which should be taught at an early age, and taught well.

The popularity of swimming as a sport with children has been clearly shown in the results of questionnaires which were given 165 children between the ages of 10 and 14. These were children of Chicago, and also of Salem, Massachusetts, a lake and an ocean city.

The following results were obtained:

146 had been to a swimming place many times.
1 " " " " " three "
5 " " " " " two "
9 " " " " " but once.
4 " never gone into the lake or ocean.

What is it that children like to do, or what is it that they are able to do in the water? Of this group of 165:

76 swim in deep water.
75 can swim a few strokes.
68 like to swim in shallow water.
61 are able to swim a distance.
57 can float.
55 can dive.
53 can swim under water.
36 enjoy playing and wading.

To the question which asked how they learned to swim it was found that:

49 were self-taught swimmers.
16 were taught by swimming instructors.
16 were taught by a friend.
12 had been pushed into the water and learned through necessity
6 were taught by their brothers.
3 were taught by their mothers.
2 were taught by their sisters.

When asked how they breathed while trying to swim or swimming, their answers made these results:

- 90 inhaled and exhaled through their nostrils.
- 31 inhaled through the mouth and exhaled through the nose.
- 19 inhaled and exhaled through the mouth.
- 12 inhaled through the nose and exhaled through the mouth.
- 20 had had accidents and of these three were very serious or near-drowning accidents.

There is a danger that those children who breathe incorrectly while trying to swim, that is, breathe through their nostrils will at some time snuff some water up their nose and choke on it, thus establishing a basis for one of the most common fears—fear of smothering or choking. This is one proof that swimming should be taught correctly by a competent instructor.

The result of the questionnaire showed that the majority of the children of this group had a lively interest in swimming and that where instructors were not provided they utilized the next best agency at hand. Certainly where there is such an active interest in swimming every precaution should be taken to insure correct teaching and to allow no room for bad experiences which promote fear and kill the interest which is so valuable and healthful.

When fear is aroused or established it should be routed in the least possible time by making the conditions safe, by
getting at the root of the fear and explaining it away, and by helping the fearful one to understand her own fear and suggesting the physical or mental means of overcoming it. Then if the lesson is enjoyable and the pupil made to feel some joy of accomplishment, if the lesson itself is pedagogically sane in its step by step progression, the fear should in time be entirely overcome, and the progress in swimming become accelerated, and satisfactory to both pupil and teacher.
APPENDIX

QUESTIONNAIRE USED
TO TRACE FEAR OF THE WATER

Section:
Name:
Age:
Race:

When do you remember first experiencing fear of the water?

Describe exactly what you fear.

Did anyone ever suggest the danger of the water to you with cautions or warnings? If so, state them.

Have you seen, read of, or been told of accidents connected with water which impressed you greatly? What precisely?

If you have had some bad experience connected with the water, state if your attitude changed after the accident, and tell how you felt.
As a baby and young child did you play in the water with floating toys? (Check) --- Yes... No...

Did you play games in the water with others? (Check) Yes..No.

Were you ever pushed into water beyond your depth, "ducked" or frightened by threats?

Do your parents, brothers and sisters like water sports?

At what age did you first go to a beach, pond or pool?

To what degree have you overcome your fear of the water?

To what factors do you attribute the degree of correction of that fear?

Note- This type of questionnaire would have to be modified and re-worded to make it suitable for children.
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REFEREES' REPORTS

It is the practice of the Graduate School to have theses read by three referees. If the first two votes are favorable, the third reading is sometimes omitted. The Graduate Council regularly recommends for the degree all students who have a majority of favorable votes.

Students are frequently required to rewrite portions of their theses because of the referees' criticisms. This will explain why references to pages are sometimes inaccurate and why shortcomings concerning which comment is made in the reports are found not to exist.
FEAR AS AN INHIBITORY FACTOR IN MOTOR-FUNCTION.

The paper, in its present form, does not meet the requirements for the Master's degree.

My objection is not to the material nor the general trend of method. The paper does little more than skim the surface; there is a lack of independent discussion and criticism of the emotion of fear in general; a lack of detailed application of the findings in the general field of fear to the specific sphere of water-fear, e.g., the deleterious physiological effects, the utility of fear, etc. The first five chapters rouse one's expectations to receive considerable illumination regarding these points when applied to swimming; these expectations are not realized.

The material referred to and the general method of the author indicate that she can handle the subject satisfactorily.

George H. Mahowald, S.J.

The shortcomings which I noted in the first draft have been corrected and I recommend that the thesis be passed.

George H. Mahowald, S.J.
Subject: M. A. Thesis -- Dorothy E. Bresnahan

This document, while interesting, does not impress me as meeting the standards essential for the Master's degree.

Criticisms: Too brief
Too many quotations
Lacks original thinking on the part of the writer.

The writer impresses me as a careful compiler -- who needs a better understanding of the elements of research and problem-solving.

May 12, 1928

William H. Johnson

Subject: M. A. Thesis -- Dorothy E. Bresnahan

In my estimation the M. A. thesis submitted by Miss Bresnahan is satisfactory. The bibliography seems somewhat "overloaded" -- only about a fourth having served a definite purpose. The remainder may of course have aided the author in acquiring an "apperceptive mass."

May 31, 1929

William H. Johnson